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All pictures in this issue are from official United States Air Force and National Archives sources.
It is the policy of *The Airpower Historian* neither to endorse nor subscribe to the views expressed in the articles it presents. Many events in history must perforce remain controversial by reason of the multiplicity of interpretations given these events by those who participated in them, or have studied them from hindsight. Appropriate articles are invited for consideration.

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THE AIR FORCE HISTORICAL FOUNDATION

AIR FORCE ACADEMY ISSUE

Major General William S. Stone

Both as a Trustee of the Foundation and as Superintendent of the United States Air Force Academy, I am proud to sponsor this special issue of *The Airpower Historian.* This publication is a symbol of solidarity and of the common bond between the airman of yesterday, today and tomorrow. Through its pages, young, professionally trained officer-scholars find a means of acquainting interested readers with the results of their historical research. As teachers and writers, the Faculty members of the Academy are in a position to motivate and inspire countless cadets who will become the air leaders of the future. A knowledge and understanding of American military traditions and the men who made them, I am certain, will help encourage and stimulate the efforts of the new pioneers of the Aerospace Age. For these reasons, I encourage every officer to become a member of the Foundation. I particularly encourage members of the Cadet Wing of the Academy, AFROTC Cadets and Aviation Cadets to take advantage of the special student membership.

Lt Colonel Eldon Downs, Associate Professor of History, and a member of the Editorial Board, served as Liaison Officer between the Foundation and the Academy. Editorial responsibility was carried out by an Academy committee consisting of: Lt Colonel George V. Fagan, Director of the Library; Captain David H. Zook, Jr., Assistant Professor of History; Captain Laun C. Smith, Jr., Assistant Professor of History; and Captain Donald M. Clelland, Instructor of History.

W. S. STONE
Major General, USAF
Superintendent

THE EDUCATIONAL CHALLENGE OF THE AEROSPACE AGE

BRIGADIER GENERAL ROBERT F. McDERMOTT
Dean of the Faculty
USAF Academy, Colorado

SINCE THE DAWN of time, every era has been a critical one. Civilization is always on trial and the individual is always on trial. But in the final analysis, any particular epoch is judged successful or unsuccessful according to whether or not the right type of leadership was available. Because the education of the cadets who are to become the military leaders of the future is the mission of the Air Force Academy, all of us associated with the Academy have a substantial role in the Aerospace Age. As teachers, we must guide young cadets to develop those qualities of leadership which will direct them toward a long-term career and a lifetime of devoted service to the Nation.

Space is the next great frontier of the human race. It is a frontier so defying that it will dwarf all previous challenges to the mind of man, including the discovery of the New World. Its impact will surpass that of all the geographic and scientific frontiers of the past 500 years. Military men have ever been on the edges of these frontiers. Their discipline, hardiness, and devotion to duty have made them particularly well suited for the task of exploration. We can recall how the Roman legions carried civilization into the remote sections of Western Europe, how the United States Army surveyed the covered-wagon trails into our Far West and protected the early settlers against the savage Indians, and how the United States Navy and the Air Force successfully penetrated the frozen, defiant Antarctic. In each instance, military men were faced with complex situations requiring unrehearsed responses to new phenomena. Faced with a vivid sense of world responsibility in a few short years, our cadets will have to set about their grim tasks as officers well armed with technical and scientific knowledge as well as political and social knowledge. Each one must be aware that a slight mistake on his part might throw into discard the achievements of many years in individual life and even in national life.

Brigadier General Robert F. McDermott

The basic purposes and concepts of the Air Force Academy program resemble those of the older service academies at West Point and Annapolis. All provide academic instruction as well as the professional military training and leadership experience essential to develop capable officers. Each academy endeavors to motivate its graduates toward a lifetime of service filled with a deep sense of honor and dedication to duty.

The Air Force Academy Curriculum

Education is a dynamic process. The modern educator knows that there must be changes in the curriculum to meet new situations as they arise. He also knows that where there is no change, there is no life and no progress. It is the policy of the Air Force Academy to examine its curriculum critically, ever seeking further refinement and improvement in both content and methodology. Only in this way, can an educational institution continue to flourish and produce graduates of proven intellectual competence. Otherwise, it faces inevitable stagnation and sterility after a decade or so has elapsed.

In compliance with Federal law, all cadets at the Air Force Academy must complete the requirements of a four-year prescribed curriculum leading to the award of an accredited Bachelor of Science degree. This prescribed curriculum, which includes academic, airmanship (military), and athletic programs is summarized in Chart 1. The prescribed academic curriculum is shown in Chart 2. It has been designed to provide the cadet with a broad, general education balanced between the natural and engineering sciences on one hand and the social sciences and humanities on the other. In addition, the Air Force Academy has a curriculum enrichment program for gifted students and for those who have completed college-level courses with acceptable grades in other accredited institutions. Under this program, adopted in early 1957, a student is permitted to meet prescribed curriculum requirements in any department by transfer of credits, validation examinations, or by acceleration of prescribed courses. In the time thus made available, students may take substitute elective courses offered by any department. They are also given the opportunity each semester to take extra elective courses over and above the prescribed semester-hour load.

The enrichment program has the following objectives: to allow a cadet to advance as fast as he can academically; to stimulate gifted students to make the best possible use of their time and of their minds; to take advantage of the previous college education of many cadets; to broaden the field of study open to cadets; and to offer them the opportunity to specialize. A corollary benefit accruing to the faculty is the stimulation that naturally derives from teaching highly motivated and gifted students. The Air Force also derives its benefits from the enrichment program in graduates who are better educated and better motivated for an Air Force career.

As an incentive to participation in the curriculum enrichment program, and in order to tailor the enrichment course offerings to the educational requirements of the Air Force, cadets are given an opportunity to major in one of four areas. These are: Basic Sciences; Engineering Sciences; Public Policy; and the Humanities. These majors are so designed that in most cases gifted students with no prior college-level preparation can complete them by the extra elective method alone. Cadets who are able to meet prescribed curriculum requirements by transfer of credits, validation, or acceleration, as well as by the extra elective method, have the opportunity to add additional breadth or depth to their education beyond the majors program.

Since October 1959, the Air Force Academy has considered an extension of the enrichment program to include a master's degree program for selected cadets. Starting with the Class of 1963, the first full strength class to enter the Air Force Academy, cadets who have extensive college transfer or validation credit, estimated at approximately 50 cadets per class, will be given the opportunity to complete the requirements for the award of a master's degree during their four calendar years at the Academy. The actual award of a master's degree will, of course, depend upon Congressional authorization and accreditation of the master's program by the North Central Association of Colleges and Second-

CHART 1

Curriculum of the Air Force Academy

in semester hours

ACADEMIC CURRICULUM		TOTAL CURRICULUM	
Basic Sciences	35	Academic Program	144 1/2
Applied Sciences	39	Airmanship Program	25 1/2
Social Sciences	30 1/2	Athletic Program	12 1/2
Humanities	40	*First Class Option	2 1/2
	144 1/2		185

*Pilot Indoctrination, Navigation Indoctrination or Enrichment Electives

CHART 2

PRESCRIBED ACADEMIC CURRICULUM

in semester hours

BASIC SCIENCES		HUMANITIES	
Mathematics	17	English	15
Chemistry	6	Philosophy	3
Human Physiology	3	History	12
Physics	9	Foreign Language	10
	35		40
APPLIED SCIENCES		**SOCIAL SCIENCES**	
Mechanics	8	Geography	4 1/2
Elec. Engineering	9	Psychology	5
Thermodynamics	6	Economics	5
Aerodynamics	6	Law	5
Astronautics	10	Political Science	11
	39		30 1/2

TOTAL 144 1/2 SEM HRS

ary Schools. Initially, it is planned to award master's degrees in only two areas: Astronautics and Public Policy.

Enthusiastic response to these opportunities has been reflected in the growth of the completely voluntary student participation in the program. The overall enrollment in enrichment courses grew from 56 percent of the cadets in the academic year 1957-58 to 78 percent during the academic year 1959-60. Participation on the extra elective basis alone was maintained by 38 percent of the Cadet Wing during the Spring semester of 1960. It is significant to note, moreover, that participation in the enrichment program by cadet intercollegiate athletes and cadet officers runs as high or higher than by the Wing Cadets as a whole. For example, during the 1959 football season, of the 28 team members who played regularly, 21 were enrolled in the curriculum enrichment program. Included in these 21 players were the team captain and the entire first string backfield. Likewise, 76 percent of the 46 cadets chosen by the Commandant of Cadets as outstanding in military aptitude and who held the cadet rank of Colonel and Lt. Colonel during the academic year 1959-60, had been participants in the academic curriculum enrichment program. The same percentages hold true during the current academic year.

The Air Force Academy continues to place emphasis upon its prescribed curriculum, which is the basis of the officer preparation that is the main function of the Academy. On the broad base thus provided, the enrichment program builds peaks of excellence. The inspiring results of this academic structure have been reflected in student performance in many standardized achievement tests. The ultimate worth of the program can be measured in the long run only to the extent that it is reflected in the officer performance of the Academy's graduates. Certainly the program should give the cadet the opportunity not only to develop his intellect but also to develop his will by a self-disciplined, voluntary pursuit of excellence.

The four year program of instruction at the Air Force Academy totals 185 semester hours. To complete this many semester hours in a civilian college would take at least five academic years. We are able to require this load of our students since our academic year is eleven months long instead of nine months. Further, the time of the cadets is budgeted and controlled more c a r e f u l l y than that of civilian college students. Secondly, our academic curriculum, exclusive of any hours that would correspond to physical education or ROTC training in a civilian institution, totals 144½ semester hours. This is much heavier than the usual 130 semester hours required for graduation from a liberal arts college and at least as heavy as that required for graduation from most engineering schools.

In some quarters, the Air Force Academy has been criticized for giving too much emphasis to education at the expense of skill training. My answer is that the nature of the Air Force and its weapons systems is such that most of the skill training of our graduates is more properly conducted after graduation from the Academy. The Air Force has an Air Training Command whose mission it is to provide skill training for all airmen and for all officers, regardless of their commissioning source. Air Force Academy graduates constitute only a small proportion of the number of second lieutenants who come on active duty every year. The cost of duplicating skill training facilities at the Air Force Academy, particularly when the weapons systems of the Air Force change so much more rapidly than those of its sister services, could not be justified. It is my considered opinion that the Air Force Academy has taken a big step forward in developing a program of military training and indoctrination centered around field trips each upperclass Summer to Air Force units at home and abroad. Cadets actually see how these units develop, sup-

port, and employ our weapons systems. If as the Chinese proverb says, "A picture is worth a thousand words," then I submit that a field trip is worth a thousand pictures.

Methods of Instruction

The Academy methods of instruction need some elaboration for those who are unfamiliar with them. Most civilian institutions of higher learning use the lecture system primarily and may have 20 to 100 or more students listening to the lecture. By contrast, at the Academy, we employ mainly the seminar and combination lecture-recitation and lecture-demonstration approach in small sections of 14 cadets each. Each cadet is expected not only to prepare his study assignment prior to coming to class, but to be prepared to be examined during the hour in either oral or written fashion or both. In our small sections, the instructor is able to direct skillfully a lesson during which every cadet may participate fully in the class discussions. Further, the intimate student-instructor relationship serves to stimulate both parties toward a deeper understanding of the subject matter. The instructor is also in a favored position to become acquainted with the mental processes of the cadet in his section and to compensate for individual differences in articulation.

Our instructional methods are designed to arouse the intellectual curiosity of the cadets. We want the cadets to be stimulated by methods of discovery through search, through inquiry, through testing, through observation and reflection—all processes of the mind rather than merely powers of absorption and reproduction. In this way, we feel we can measure our accomplishment by mental competence and creative effort rather than in a purely quantitative fashion.

Under the Academy system, evaluation is an important teaching device. Whereas most civilian institutions test their students infrequently, usually only at the mid-term and at the end of the semester, with perhaps one or two quizzes thrown in, the Air Force Academy employs a comprehensive evaluation system consisting of quizzes about once a week, graded reviews about once every 8 to 10 lessons, and a four hour final examination.

We want all of our cadets to excel in written and oral expression. Each academic department, therefore, places great stress upon communication skills. Themes, research papers, frequent book reports, laboratory reports, frequent brief talks in class, comprehensive speeches on particular topics, debates, forums—are all instructional techniques used by the Faculty to enhance cadet articulation. Consequently, the Academy Library plays a major role in the educational program of the cadets. It provides a well-balanced reference and reading collection similar to that generally found in leading liberal arts and engineering colleges and universities. The Academy Library collection now numbers more than 125,000 items and ultimately it will contain 250,000 volumes. An open shelf system is used giving readers direct access to the entire book collection. Called by leading librarians and educators, "one of the most imposing structures of its kind in the world," the Academy Library has a seating capacity for 800 people. It is staffed by professional librarians and during the academic year is open for service 95 hours a week. During the academic year 1959-60, over 67,000 items were circulated among its 2,500 registered borrowers. Statistically this amounts to a per capita use of 26.8 compared with a national average of 16.8 among American colleges and universities.

All phases of instruction are influenced by the Cadet Honor Code, which is one of the most important features of cadet life. The Code was adopted by the Class of 1959 and has since been administered through elected Honor Representatives of the Cadet Wing. The Code embodies these principles: "We will not lie, cheat or steal, nor tolerate among us those who do." It is through this sense of trust that instructors leave the classrooms while

quizzes and examinations are being administered. Both in and out of the classroom, a cadet practices the virtues of personal integrity, mutual trust, and loyalty through allegiance to the Honor Code.

Faculty Members

The Air Force Academy is distinctive in having an all-military faculty. One strong reason for this is that our mission is not only to educate, but also to motivate. We want our cadets to have not only knowledge, but also the character and qualities of leadership essential to their career development. By precept and example, we feel, the faculty can best impart to the cadets the high standards of personal conduct, devotion to duty, loyalty and dedication to the service of the nation that long have been the hallmarks of the American military profession. These qualities can be imparted only by the people who come in contact with the cadets daily. Since the cadet spends 78 percent of his supervised time under the jurisdiction of the academic faculty, it is obvious that the Academy's only solution to the complete fulfillment of its mission is to have an academically qualified military faculty. Only then, do we have instructors who can teach by what they are as well as by what they say. How can cadets be better motivated for a lifetime of service to their country than when they see their instructors are career officers?

In emphasizing the military character of our faculty, we are not sacrificing academic quality. Every one of the Academy instructors has at least a master's degree in his field and many of them hold doctorates from the best graduate schools in the country. Some of our instructors, as civilians, have served on faculties of prominent American colleges and universities. A good proportion have published books and articles in learned journals. They come to the Academy from a wide variety of assignments throughout the Air Force. Exacting faculty selection procedures are followed.

In a typical classroom scene at the U. S. Air Force Academy, cadets study German, one of four foreign languages taught the future Air Force officers. Other languages are Russian, Spanish and French. The curriculum at the Academy is balanced almost evenly between the basic and applied sciences and the humanities and social sciences.

To determine military qualifications, an officer's effectiveness reports for at least five years are screened and evaluated. Although most of our instructors serve only one four-year tour at the Academy, some return for a second tour following an intervening operational or staff assignment.

When new instructors report for duty at the Academy, they undergo an intensive in-service summer training program under the direction of the professor of the department to which they are assigned. During the school year, the professors and senior instructors observe and appraise the classroom instruction of all newly assigned personnel in order to assist their individual development in the art of teaching. Additional assistance is given during departmental conferences, in which special problems in subject matter or methods of presentation are discussed. The main objective of these conferences is mutual assistance in improving instruction, not standardization of methodology. Each instructor is free to employ the techniques he feels will be most effective with his sections. This procedure gives flexibility to an institution like the Academy, which employs homogeneous grouping in sectioning its students. Teaching techniques can be tailored to the abilities of the students, and the students can progress at the best rate suited to their individual abilities.

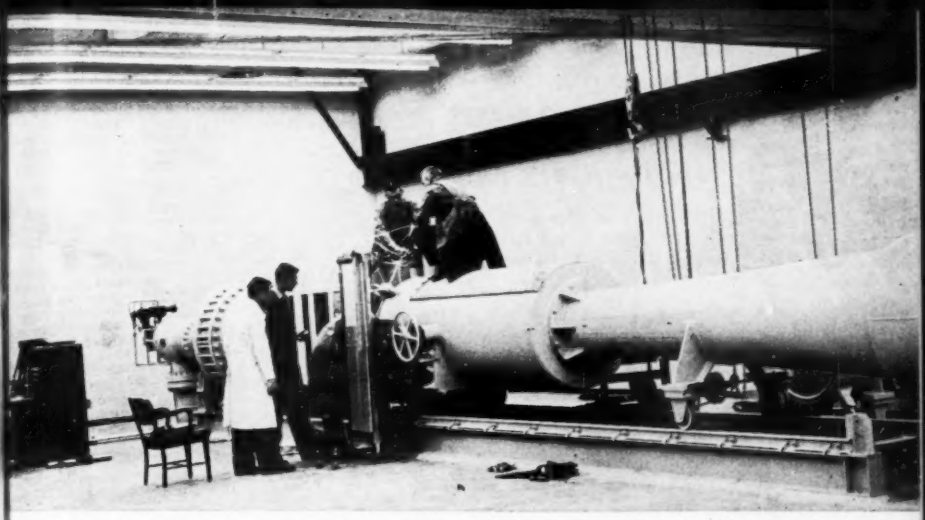
There is another special feature about our faculty. Many of our instructors are not only qualified in their subject area, but they bring into the classroom related professional experience which one rarely finds among civilian instructors. For example, most of our instructors in the social sciences and foreign languages have had overseas experience. Some of those teaching foreign languages, history and international relations have had attaché or mission duty or have served in intelligence. Similarly, many of our instructors in physics and chemistry have had assignments involving the development of nuclear weapons. In our Astronautics Department, we have officers who have served in the Ballistic Missile Division, while in our Aeronautics Department we have a number of former test pilots.

What is the reaction of civilian educators to the Academy's all-military faculty? I am happy to say that without exception, experts in higher education who have actually visited the Air Force Academy have praised the academic caliber of the faculty and the high level of classroom instruction. Examiners of the North Central Association, for example, noted in their report that the academic performance of the cadets was much farther above the median than even their relatively high level of ability would indicate. The members of the examining board attributed this high level of performance to the Academy's curriculum, the faculty and the instructional system. In the words of the report of the North Central Association examiners ". . . The Faculty is a superior one for the institution's purposes, which are not only to train and educate the cadets but to orient them positively toward a permanent career as Air Force officers."

Evaluation

From entrance into the Academy until graduation, cadets are given various standardized achievement tests. These tests enable us to evaluate our program and furnish data for accreditation examiners and various interested agencies. Most significant probably are the Educational Testing Service Graduate Record Examination area tests. The Academy has given these tests to the two classes we've graduated so far and to our class of 1962 toward the end of their second year here. The Graduate Record Examinations are given to nearly all college seniors who contemplate going into graduate work, and many schools have all their graduating seniors take some of the tests as a check on their student achievement.

Chart 3 shows the mean scores made on the 1958-59 Natural Sciences Area Test by the 187 schools which adminis-



The science laboratories at the Air Force Academy have excellent equipment. One of the most outstanding examples is the aerodynamics laboratory which has a trisonic wind tunnel for testing wing forms and such at speeds varying from subsonic through the transonic range, up to five times the speed of sound.

tered this, and the Social Sciences and Humanities area tests, to all their graduates. The colored squares indicate our classes which took the test. You will note that in the Natural Sciences Area Test the scores of our three classes, — the two graduating classes, and the Class of 1962 as sophomores — were exceeded by only one civilian college.

Chart 4 shows the score distributions in the Social Sciences Area Test. Our Academy classes were almost as high as they were in the Natural Sciences examination, and again the scores of our three classes — the two graduating classes and the Class of 1962 as sophomores — were exceeded by only one civilian college.

Chart 5 shows that in the GRE Humanities Area Test we ranked lower, although still well above the average.

Our rankings among the 187 colleges on the Humanities Area Test were: Class of 1959, 21; Class of 1960, 42; Class of 1962, 87. It is to be noted that the majority of our cadets in the Class of 1962 (which took the GRE tests as sophomores) had not taken the prescribed courses in literature and philosophy which are scheduled in the junior and senior years. We attribute our lower ranking in this test to the fact that our prescribed curriculum does not include any fine arts courses. We do have an elective course in the fine arts, our cadets get a great deal of literature in their English courses, and in our history course we stress the cultural aspects of history.

Chart 6 shows the composite scores—for all three tests—made by Air Force Academy classes and the seniors of the 187 colleges tested on the Graduate Record Examination in 1958-59. You will note that again our graduating classes of 1959 and 1960 were excelled by only one civilian college, and that our sophomore class of 1962 was excelled by the seniors in only three civilian colleges.

Now some observers have suggested that our good performance reflects the large number of our cadets who come to us with prior college experience. Of course this would appear on the entrance examinations, but we have run a check anyway. Of the six GRE score comparisons which could be made among our seniors, five showed that cadets with no prior college ranked higher than cadets

GRADUATE RECORD EXAMINATION

MEAN SCORE RANKINGS OF USAFA CLASSES AMONG SENIORS OF 187 COLLEGES TESTED IN 1958-59

CHART 3

630	1
610	3
590	3
570	1
550	2
530	5
510	12
490	25
470	39
450	36
430	26
410	18
390	13
370	3
350	2

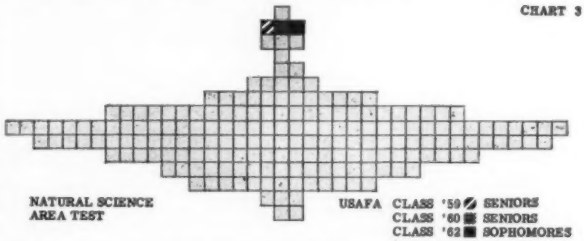


CHART 4

610	1
590	2
570	0
550	3
530	7
510	7
490	13
470	33
450	25
430	40
410	22
390	16
370	9
350	3
330	1
310	3
290	0
270	3
250	1

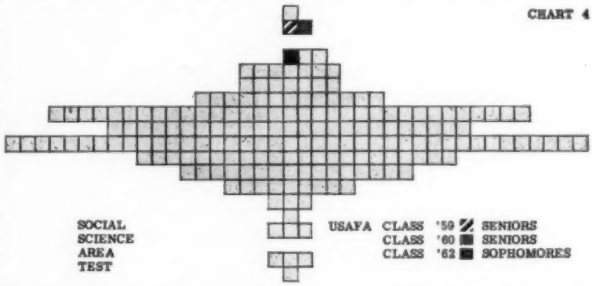


CHART 5

630	1
610	1
590	1
570	1
550	7
530	14
510	21
490	25
470	33
450	31
430	26
410	11
390	10
370	2
350	1
330	2
310	1
290	0
270	1

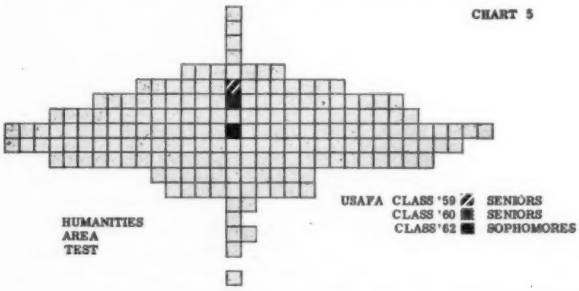
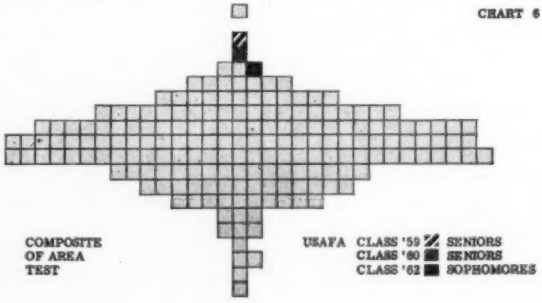


CHART 6

1800	1
1750	0
1700	1
1650	1
1600	3
1550	7
1500	12
1450	20
1400	29
1350	31
1300	32
1250	17
1200	14
1150	10
1100	3
1050	3
1000	1
950	2
900	1
850	1



with prior college. One test showed tied scores. Among our sophomores, on the other hand, cadets with prior college scored slightly higher on all three tests than cadets with no prior college.

One of our friends suggested that our cadets' improvement relative to that of other college students had another basis. He asked, "To what extent is the improvement in the standing of the Academy caused by a more rigorous exclusion policy which brings it about that men tested in their last year at the Academy are the cream of the crop instead of the whole lot?" Our answer to this is that little if any of the improvement can be attributed to our elimination policy. We have found that while we lose a lot of poor students for academic reasons—as do all other colleges—we also lose a lot of cadets who rank high academically but who decide they do not want a military career and *resign*. The shape of the aptitude distribution curve for boys finishing the Academy course is about the same as that for our entering classes.

Now we don't think there is any magic in figures, but we do think our responsibility to the Air Force and the nation makes it imperative that we check our achievement thoroughly and frequently. I think this series of charts shows that our cadets improve relatively, compared to other college students, during their stay at the Academy. This was borne out by the examiners of the North Central Association of Colleges and Secondary Schools, when we applied for accreditation the year before last. The examiners reported, "There is ample evidence to show that the cadets' performance is much farther above the medians than ever their relatively high level of ability would warrant. . . . various standardized measures show clearly that standard achievement, compared to other selected colleges, is high, higher indeed than even the relatively excellent abilities of the student body would indicate." Our unprecedented early accreditation by the North Central Association is itself another evidence of the Academy's achievement to date. Normally institutions are not even allowed to apply until they have operated at least four years, but after preliminary examination the NCA allowed the Academy to apply early. After the most thorough examination, the Academy received accreditation by the North Central Association in time for our first graduating class to be awarded accredited degrees.

Report on Graduates

There are other student achievements which I would like to mention. After graduation, seven members of the Class of 1959 went directly to graduate school. Lieutenant Bradley Hosmer, first honor man in his class, was selected for a Rhodes Scholarship and is now attending Oxford University studying Politics, Philosophy, and Economics. Lieutenant Gerald Garvey is attending Princeton University and studying International Relations. Four graduates, three of them football players, are attending the Massachusetts Institute of Technology and studying Astronautics. The football players are Lieutenant Brock Strom (the team captain and All-American tackle), Lieutenant Larry Thomson (who won the award for the best all around athlete at the Academy), and Lieutenant Charles Zaleski (a first string guard). The other member of the Class of 1959 at MIT is Lieutenant Nathaniel Keezell. The seventh graduate student was Lieutenant Louis Kingsland (second man in his class) who is pursuing graduate studies at California Institute of Technology. In June, 1960, after one year of graduate work, with the highest grade point average in his class, Lieutenant Kingsland was granted his Master of Science degree in Aeronautics.

Four members of the Class of 1960 are now attending MIT and studying Astronautics. They are: Lieutenant Michael G. Buchen, Lieutenant Norman M. Haller, Lieutenant John A. Schira, Jr., and Lieutenant Frank D. Mayberry.

In the spring of 1960, the members of

Maj. Gen. Benjamin D. Foulois, USAF (Ret.), President of The Air Force Historical Foundation discusses the rapid progress of flight over the last 50 years with two Air Force Academy cadets during a visit to the Academy.

the Class of 1959 completed the first phase of their pilot training at various bases. Out of six possible Outstanding Graduates in Pilot Classes 61A and 61B, former Air Force Academy cadets received five out of six. Named as outstanding graduates were: Second Lieutenants Joseph G. DeSantis, James M. Rhodes, Jr., Dean C. Wood, Arthur G. Elser and Michael P. Carns. Statistics show that of the 186 members of the Class of 1959, only four washed out in basic training and 13 others in primary training. This loss of nine percent was several times lower than the failure rate for other types of pilot trainees. In primary training, for instance, Academy losses were 6.5 percent. But the average rate for all pilot trainees—ROTC cadets, graduates of other service academies, and others—was five times that figure.

In July 1960, 78 members of the Class of 1959 received their pilot's wings at six Air Training Command bases as members of Pilot Class 61A. The outstanding graduate with a grade average of 93.5 during his year of pilot training was Lieutenant Robert D. Beckel. At the Academy, Bob Beckel was the star of the basketball team for four years and as a senior served as Commander of the Cadet Wing. In September 1960, 81 members of the Class of 1959 received their pilot's wings as members of Pilot Class 61-B. Lieutenant Michael P. Carnes was named as the Outstanding Graduate of Pilot Class 61B at Laredo Air Force Base.

The Air Force Academy is still a new institution and we do not plan to rest on the laurels won during our first five years of existence. We plan to evaluate our program continually to meet the changing needs of our cadets and of the nation they will serve. We will continue to welcome constructive criticism aimed at furthering the accomplishment of the Academy's mission. I am confident that with the enduring understanding and support of the American people, the Air Force Academy will add to the splendid traditions of the older service academies and will produce future aerospace leaders of whom their country will be proud.

LUFBERY: ACE OF THE LAFAYETTE ESCADRILLE

CAPTAIN PHILIP M. FLAMMER

Lure of all far countries called him,
Seas enticed, and skies enthralled him.
Knowing neither fold nor fastness,
Breaking futile bonds that galled him,
Only Venture held him captive with her spell.
But the wonderlands that drew him,
And the venturing that slew him,
Pale beside the golden vastness
Of the realms that opened to him
In the little flowering garden where he fell.

MABEL KINGSLEY RICHARDSON*

WITH SEVENTEEN confirmed victories and a substantial number of unconfirmed ones,[1] Gervais Raoul Lufbery was easily America's top ranking ace when he abandoned his burning aeroplane and fell to a spectacular death in May 1918. This impressive statistic, however, does not do justice to a career as varied as it was dramatic. For Lufbery was more than a superb pilot; he was a classic victim of the wanderlust, a sort of wanderer with little education and very little money yet he died an international hero less than 250 miles from the place of his birth. He experienced enough travel, danger and excitement to satisfy the most ardent adventurer and fill a dozen books, yet to his friends and family he remained a tight-lipped man of mystery. He was gentle and considerate to those who knew him but in combat he was a killer who thrived on vengeance.

Wanderlust and Adventure

Lufbery was born in Clermont-Ferrand, France, on 21 March 1885, the third son of Edouard Lufbery, an American who had settled in France, and his French wife, Annette. The unfortunate child grew up in semi-poverty and learned early the meaning of tragedy. His mother died when he was less than a year old and the father, unable to earn a living and care for the boys, placed them in foster homes.[2] They were never again properly reunited.

In 1890, Edouard Lufbery remarried but since he was preparing to return to

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*Quoted in "Current Poetry," *Literary Digest*, LX (15 Feb. 1919), 36.

[1]Lufbery's fellow pilots insist that he actually shot down more than forty German aeroplanes (see Paul A. Rockwell, *American Fighters in the Foreign Legion* [Boston: Hougton Mifflin Co., 1930], 297), a claim that is substantiated by entries in the *Nieuport 124 Journal de Marche*, which is the official day-by-day account of the squadron activities. The reason for only seventeen confirmed victories is that the French required three separate witnesses to the event. Balloon, artillery and infantry personnel could qualify but fellow airmen were excluded. Naturally any victory taking place an appreciable distance behind the German lines was certain to be unconfirmed. (Ltr, Rear Admiral [Ret] Edwin C. Parsons to the author, 15 Oct. 1960).

[2]James Norman Hall and Charles B. Nordhoff, *The Lafayette Flying Corps* (Boston: Houghton Mifflin Co., 1920), I, 330-331. Virtually all information on Lufbery's early life is based on an interview that Paul A. Rockwell had with Lufbery in the summer of 1916. Hall and Nordhoff received their information from this source.

the United States the following year, and was uncertain of conditions there, he declined to take the boys with him, placing them instead in the care of their grandmother.[3] They were still separated eleven years later, when the second Mrs. Lufbery died, leaving five small children of her own. Any plans Edouard had for bringing his three sons to America were of necessity postponed. As for young Gervais, a remarkably devoted son considering his meager family life, he went to work in a chocolate factory in Blois and, for the next three years, sent most of his income to his hard-pressed father.[4]

By 1904, no longer burdened with family responsibilities and overcome by the spirit of wanderlust, young Lufbery left France to "see the world." Traveling when he had money and stopping to work at odd jobs when he had none, he went to Algiers, to Tunis and on to Egypt. He worked for a while as a waiter in Constantinople, thence through the Balkans to Germany, where he was employed by a steamship company that traded between Hamburg and German South Africa. In 1906, after almost three years of wandering, he came to America to visit his father who had settled in Wallingford, Connecticut. But by a strange and tragic coincidence, the elder Lufbery, an avid philatelist, sailed for Europe in search of stamps the same day that Lufbery arrived in New York City.[5] As fate would have it, they never met again.

After two years of comparative quiet in Wallingford, waiting for his father to return, Lufbery again succumbed to the lure of the road. He visited Cuba, worked in a New Orleans bakery, and found employment in San Francisco as a hotel waiter. There, he enlisted in the United States Army, a new venture that gained him American citizenship and a two-year tour of duty in the Philippines.[6]

Following his term of enlistment, Lufbery traveled throughout the Far East. He visited Japan, worked with the Chinese Customs Service and was a ticket-taker on the Bombay Railway. He lost this job when one day a large, pompous Hindu strode up to his gate.

"Ticket!" said Lufbery.

"You must say *sir* to me," retorted the Indian.

Gervais Raoul Lufbery after a combat patrol. The helmet, which Lufbery cherished and eventually wore to his death, is now in the possession of the author.

Quick-tempered Lufbery turned the Hindu around and literally kicked him out of the railway station. A few minutes later, he was called into the station-master's office and discharged. He had kicked the wealthiest and most important Hindu in Bombay![7]

Friendship and Revenge

Lufbery was in Saigon in 1912 when an event occurred that gave purpose and direction to his life. Marc Pourpe, a noted French flier, was treating the natives to an exhibition of dare-deviltry. His partner dead as the result of an accident and his mechanic departed because of illness, Pourpe was in desperate need of help. He advertised for a mechanic

[3] *Ibid.*
[4] *Ibid.*
[5] *Ibid.*
[6] *Ibid.*; Ltr, Adm. Parsons to the author, 15 Oct. 1960.
[7] Ltr. Col. Paul A. Rockwell to the author, 18 Oct. 1960.

and Lufbery, who had witnessed some of Pourpe's exhibitions, responded eagerly.

Their meeting, so consequential to Lufbery's future, was fortunately recorded by Pourpe shortly after it occurred. The young man, whom Pourpe described as "well built" with "frank and loyal eyes, a constant and slightly mocking smile and an air of honesty," asked for the job. The conversation went as follows:

"You are looking for a mechanic?"

"Yes."

"Would you like me?"

"Are you a mechanic?"

"No!"

"You are not acquainted with aeroplane motors?"

"No!"

"Then why are you asking for the job? Are you jesting with me? I have other things to do besides amuse people. Adieu."

"Please, just a moment. Did you understand a motor the first time you worked on it? No! And yet you became an expert mechanic. Why can't it be the same way with me? I am quick to learn and willing to work. You show me just once and I will remember it from then on. I am certain that you would not regret accepting me."[8]

Pourpe found the encounter "original" and Lufbery's reasoning "full of logic." He accepted the youth at his word and apparently neither man ever regretted the decision. In a remarkably short time, Pourpe was convinced that Lufbery was "the most devoted, most intelligent and most apt" young man he had ever known.[9]

Pourpe and Lufbery were soon inseparable friends. They worked together throughout the Near and Far East, including Pourpe's famous flight from Cairo to Khartoum and return. The king of Cambodia was so pleased with the exhibition given him that he decorated them both with a solid gold medal which entitled them to a guard of honor any time they set foot in Cambodia. Lufbery was so proud of this award that he never parted with it, no matter how perilous his financial position.[10]

The team returned to Paris in the summer of 1914 to exchange their well-worn Bleriot for a new Morane Parasol. They intended to undertake another extended tour through the Orient, but before the transaction could be completed, the war broke out.[11]

Pourpe, a true Frenchman, enlisted forthwith in aviation where his services were gratefully accepted. Lufbery attempted to enter pilot training, but was checkmated by a French law that precluded a foreigner from serving anywhere except in the Foreign Legion. Undisturbed, Lufbery marched with a number of other Americans to the Hotel des Invalides on 21 August 1914 and enlisted in the Legion but through the efforts and influence of Pourpe, was detached the following day to the SERVICE AERONAUTIQUE. *In a matter of days, he was again working as Pourpe's personal mechanic.*[12]

On 2 December 1914, Lufbery's contented life as Pourpe's friend and assistant came to an abrupt end. Pourpe, returning from a night reconnaissance mission, was forced to attempt his landing in a heavy fog. He crashed near the field and was killed.[13] Lufbery was completely devastated. For some reason, he blamed the Germans for the accident and vowed he would personally avenge the death of his friend.[14] From that time forth, Lufbery never forgot friend or vow; revenge became his primary motive.

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[8]Marc Pourpe, "Comment Je Connus Lufbery," *La Guerre Arienne*, 13 Dec. 1917, 100.

[9]*Ibid.*

[10]Ltr, Col. Rockwell to the author, 13 Oct. 1960.

[11]Hall and Nordhoff, I, 331-332.

[12]Paul A. Rockwell, "L'Escadrille La Fayette," *La Guerre Arienne*, 19 July 1917, 574.

[13]Jacques Mortane, "Les Heros Disparus: Marc Pourpe," *La Guerre Arienne*, 30 Nov. 1916, 55.

[14]Rockwell, *American Fighters in the Foreign Legion*, 191; Interv with Col. Paul A. Rockwell, 7 Nov. 1959.

An Impenetrable Enigma

Nearly everyone who met Lufbery thereafter was impressed by him, for by any standard he was an unusual man. A squat, chunky figure just a trifle over five feet six, Lufbery had an unusually broad forehead, deep set eyes and muscles of steel. He rarely spoke and when he did, his accent betrayed the numerous nationalities with which he had come in contact. He was described by those who knew him as "a walking meteorological chart on flying conditions, prevailing winds and when bad weather might set in."[15] If anyone mentioned a far-away place, it was almost certain that Lufbery had been there at one time or another, absorbing the national drink and capitalizing on his penchant for knowing the mayors and mayors' daughters. Yet after the death of Pourpe, it is doubtful that Lufbery ever had another close friend. While with the Lafayette Escadrille, he manifested a special liking for Paul Pavelka, a young man from Connecticut. Pavelka, however, played second fiddle to Whiskey and Soda, the two lion mascots of the Lafayette Escadrille. Lufbery would play with the two cubs for hours and seemed to have been the only individual that Soda, the cantankerous female, would accept.

Above all, Lufbery was a man of mystery. Not even his immediate family ever claimed to really know or understand him,[16] and to his comrades in arms he remained an impenetrable enigma. He would take long, solitary walks, often returning with a basket of mushrooms of which he was inordinately fond, but where he went and what he did he kept to himself. Even in the air, where friendly company was highly desirable and usually welcome, he liked to be alone.[17] He was, in a very real sense, an island unto himself, for what lay behind that broad forehead, those inscrutable eyes, and that mocking smile, no one knew for certain. As one acquaintance put it:

> I ate, slept, drank and fought beside . . . [Lufbery] for months on end. I discussed combat tactics and played bridge and went on binges with him . . . . I was in daily contact with a figure of flesh and blood, but know him? Not a chance. In contrast to him the Sphinx was a child's primer. He kept his real self shut up like a clam in a shell. He was a man seemingly devoid of fear or, in fact, emotion of any kind. . . . I only know one certain thing about him. Raoul Lufbery flew, fought and died for revenge.[18]

After Pourpe's death, Lufbery again applied for pilot training and this time was accepted, the French having somewhat altered their views regarding foreigners in aviation. In May 1915, Lufbery began training at Chartres, where, the following July, he was *breveted* in the Maurice Farman, a rather clumsy bombardment machine. Later, he was trained in the Voisin, another slow-moving bombardment craft and, in October 1915, was sent to the front with Voisin Bombardment Squadron 106. It was at this time that the French authorities were seriously considering the formation of an all American squadron. As its creation became more certain, Lufbery was withdrawn from the front and sent to Le Plessis-Belleville for training as a *pilote de chasse* since it was apparent that the new American squadron would be equipped with the Nieuport. Surprisingly enough, Lufbery, who would soon be in-

[15]Edwin C. Parsons, *The Great Adventure* (New York: Doubleday, Doran and Co., 1937), 73-74.

[16]"Lufbery Vanquished in a Battle with Huge German Plane," *Literary Digest*, LVII, 8 June 1918, 42.

[17]Parsons, 72ff; James Norman Hall, *My Island Home* (Boston: Little Brown and Co., 1952), 192.

[18]Parsons, 73. To compound the mystery, Lufbery had somewhere picked up religion although oddly enough, it was evident only when he was intoxicated. Said Mr. Emil A. Marchal: "When Lufbery got drunk he always cited something in connection with the Salvation Army. Once . . . when I was sleeping, he poured water on me, thinking he was saving my soul." (Interv with E. A. Marchal, Pegomas, France, 21 Jan. 1960.)

ternationally recognized as a masterful pilot, proved particularly inept in pursuit flying. His instructors worried about his clumsiness and recommended that he be transferred back to bombardment type flying. However, Lufbery persisted, overcame his ineptness and soon qualified as a fighter pilot.[19] On 24 May 1916, he was transferred to Nieuport 124, the official designation of the Lafayette Escadrille.[20]

Lufbery joined the Squadron at Barle-Duc in the Verdun Sector, only five days after the squadron's transfer from its initial station at Luxeuil. Indeed, Lufbery came within a month of being one of the "original" members of the unit. His commanding officer, Capitaine Thenault, described his arrival as follows:

> On the 24th of May there came to the escadrille a pilot whom I was too busy to take much notice of the first day but who rapidly attracted everyone's attention. Simple, modest, silent and hard-working, always getting his plane ready himself — it was Lufbery.[21]

"They . . . Paid With Their Lives."

Lufbery at last was in his element, yet he was not so fortunate as to soon enjoy the victory and revenge that he so ardently sought. For more than two months while the first battle of Verdun raged below him — longer than many pilots could expect to survive on the front — Lufbery was often on patrol with his comrades but he had not become the masterful pilot who could capitalize on almost any situation and, unlike some of his more fortunate comrades, he was not blessed with a "lucky break."

[19]Hall and Nordhoff, I, 332.
[20]*Ibid.*

[21]L'Colonel Georges Thenault, *L'Escadrille Lafayette* (Paris: G. Budy & Fils, 1939), 45-46.

Lufbery's Spad. He gained most of his victories in this sturdy airplane. The Sioux Indian Head was the famous insigna of the Lafayette Escadrlle, while the swastika, used in its ancient meaning as a good luck symbol, identified Lufbery's personal plane.

"Luf," as his comrades now called him, registered his first kill on the morning of 31 July 1916. The patrol began with James R. McConnell from Carthage, North Carolina (later killed in combat) but the two became separated while "absorbed with looking at the great battlefield." Lufbery continued on alone and over the Forest d'Etain, he saw a two place German Fokker, its occupants calmly scanning the battlefield below. In what was probably the only article he ever wrote for publication, he told the story of this encounter.

> The situation looked favorable, yet in spite of this, as a prudent step, I checked above and below me to make sure that there was no protecting cover. It would have been tragic to fall into a trap, especially since I was now aware of their favorite ruse, having been a victim of it several times.
>
> Most probably, the Boche had not seen me. If not, it was essential that I forthwith capitalized on this advantage. I cut the motor and dove in his direction. . . . After several sharp turns, I succeeded in passing his line of fire and placing myself some 30 meters behind his fuselage and a little below the tail surfaces. . . . He saw me then but it was too late. In vain the German pilot banked his aeroplane to permit his gunner to fire. It was useless. They paid for their lack of vigilance with their lives. I grabbed the mechanism that fired the machine gun. Pan . . . pan . . . pan . . . and 47 bullets were fired. The whole thing was a matter of seconds. At this time we found ourselves so close to each other that I had to make a quick left turn to avoid a collision.
>
> After again getting my machine back on a normal keel, I searched below me that I might observe the fall of my adversary. . . . In order to see better, I raised by goggles and with satisfaction, noticed that the German machine was coming apart in the air; the chassis and wheels, which were falling directly below me were evidence of that. The Boche never gained control but continued to fall helplessly in large spirals. . . . I observed first a trail of black smoke coming from the machine, then flames. The fall became more rapid and the flames increased in intensity. Finally, the fiery airplane crashed in a ravine a short distance within the German lines.[22]

Lufbery suspected that the air battle had been observed by the friendly ground personnel and that the victory would be confirmed. His assumption was correct for the infantrymen, apparently noting the Indian good luck sign of Lufbery's plane, had reported the whole story and the squadron, eating lunch back at Bar-de-Duc, heard the news by phone before Lufbery returned.[23] There was naturally a small celebration when Lufbery landed and a brief ceremony as he took his first drink from the Bottle of Death, an 80 year old bottle of whiskey given the squadron by Paul A. Rockwell to celebrate his brother's — and the squadron's — first victory. So priceless was this treasure to the spirits-loving aviators that only those who brought down a German plane were allowed a drink.[24]

Man and Plane — A Team

One reliable source credits Lufbery with another victory the following day but it was not confirmed and no mention is made of the type of German plane nor where it fell.[25] On 4 August, however, he fought two Albatrosses, sending one of them down in flames near Abancourt. For this and previous action, he was awarded the *Medaille Militaire*, the highest award a non-commissioned officer could receive, and the *Croix de Guerre*, together with the following citation:

> A model of address and of *sang-froid* and courage. Has distinguished himself by numerous long-distance

[22]Gervais Raoul Lufbery, "Un Boche Abattu," *La Guerre Arienne*, 11 Jan. 1917, 139.
[23]Thenault, 49.
[24]Parsons, 7.
[25]Rockwell, "L'Escadrille La Fayette," 574.

bombardments and by the combats he delivers daily to enemy aeroplanes. July 31 he did not hesitate to attack at close range a group of four enemy aeroplanes. He shot one of them down near our lines. He succeeded in destroying a second one on August 4, 1916.[26]

Four days later he registered another victory, shooting down, near the fort of Douaumont, an Aviatik bombardment machine piloted by a Lieutenant Schneider.[27] *It was his fourth victory in nine days. Naturally there was another citation, this one praising him as a "pilot with remarkable zest."*[28]

There is little doubt that by this time Lufbery had indeed become a master pilot. His comrades often spoke or wrote of his finesse with an aeroplane. As two of them put it:

> His aeroplane . . . was really a part of himself, a thing which may be said of but few airmen. He actually flew as a bird flies, without any thought of how it was done. Those of us who were associated with him in the Escadrille Lafayette used to gather at the hangars when not on duty to wait for his return from the lines. . . . When over the aerodrome he would throttle down and make his descent in beautiful *renversements* without an abrupt movement, so delicately done that there could not be the slightest strain on his machine.[29]

Lufbery was now justly recognized for other things besides his magnificent ability to handle the plane and the growing number of tiny red bars painted on one of the struts of his aeroplane. He had an uncanny ability for finding Boche aeroplanes where, according to his comrades, "there just weren't any."[30] He would suddenly be missing from the formation and could be found far below chasing an observation plane that somehow had escaped everyone else's attention. He was also unusually cautious at a time when reckless flying was tragically common. Given the opportunity, he would stalk his foe like a feline stalks its prey, moving to the most advantageous position and waiting for the best possible moment. Yet he could be daring to the extreme when the occasion warranted it. More than once he rushed headlong into some uneven battle to give a hard-pressed comrade much-needed assistance. Though troubled by crippling rheumatism, which twice sent him to army hospitals, he loved to fly, preferably alone, and his commander, Capitaine Thenault, had to give him "positive orders" not to fly too much. Yet Thenault, as often as possible, would place Lufbery above the patrol to "dominate the situation." As the Capitaine put it, *"Il était un surhomme!"*[31]

Throughout the remainder of August and September, combats were common but victories rare. On one occasion a German surprised Lufbery and sent two bullets crashing through his fur-lined clothing and another through one of his flying boots. The plane, "riddled from wing tip to wing tip," was junked as being beyond repair.[32]

On 1 September 1916, Lufbery was promoted to Adjutant and eight days later, after a short leave, most of which was spent in the disciplinary barracks at Chartres for fist-fighting in a railway station,[33] he shot down another German, this one too far behind the German lines for official confirmation.[34]

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[26]*Nieuport 124 Journal de Marche*, 23 Aug. 1916. This priceless document is the day-by-day account of the squadron's activities. Microfilm copy in the author's possession.

[27]*Fraternité d'Armes Franco-Américaine* (Paris: Ministère de la Guerre, 1957), 105.

[28]Hall and Nordhoff, I, 328.

[29]*Ibid.*, 333.

[30]Parsons, 290.

[31]Thenault, 109-110.

[32]James R. McConnell, *Flying for France* (New York: Doubleday, Page and Co., 1917), 102.

[33]Telegram, Lufbery to Capitaine Thenault, n.d., ca 10 Sept. 1916. Copy in the author's possession; Thenault, 52.

[34]*Fraternité d'Armes Franco-Américaine*, 105.

Ace and Double Ace

The date of the famous Oberndorf bombing raid, 12 October 1916, was a period of intense aerial activity. The Lafayette Escadrille, charged with protecting the returning bombers, performed valiantly, losing in the process Norman Prince of Prides Crossing, Massachusetts. But the Germans also suffered, and among their losses was a three place Aviatik, shot down by Lufbery to give him his fifth confirmed victory and the honor of having his name cited in the *Officiel Communique* of the French Army.[35] He was now well on his way to becoming an international hero.

His sixth official victory came on 10 November near Busigny. Lufbery fought three German planes at once and so intense was the fight that he did not see his adversary fall.[36] He later learned, however, that he had destroyed a *Halderstadt* flown by Lieutenant Guerther.[37]

Lufbery's string of victories now grew rapidly. On 27 December 1916, he downed an Aviatik in less than ten seconds, sending the plane and the pilot, Lieutenant Leffers, to a fiery death. The following month, another Aviatik, fell prey to his marksmanship. Its pilot, Lieutenant Erdmann, was already dead when his flaming craft hit the ground southeast of Chaulnes, a very short distance from where Leffers fell.[38]

This intense period of activity and achievement naturally brought new recognition. A general order dated 30 January nominated Lufbery as a Chevalier of the Legion of Honor and further praised him as "a *pilote de chasse*, who has displayed a remarkable boldness and who destroyed, as of 27 December 1916, six enemy aeroplanes. Already twice cited in the Order of the Army and Medaille Militaire." This presentation carried with it another *Croix de Guerre* with palm.[39]

[35]*Ibid.*
[36]*Journal de Marche,* 10 Nov. 1916.
[37]*Fraternité d'Armes Franco-Américaine,* 105.
[38]*Ibid.,* 106.
[39]Hall and Nordhoff, I, 329.

Lufbery gained his next victory southeast of St. Quentin on 8 April and sixteen days later shot down a German biplane north and east of Cerisy. Of this combat, Lufbery reported:

> I fired forty bullets at him. At first the aeroplane seemed to fall but later redressed. I attacked him a second time and had just begun to fire when the machine gun jammed. After this the German disappeared below me and I never saw him again.[40]

There were no victories in May although Lufbery flew often and engaged in combat at least six times. Instead, there was more honor and glory. On 19 May, Lufbery was awarded the British Military Medal in the name of the King of England, the first member of the Lafayette Escadrille to be honored by a nation other than America or France.[41]

Lufbery became a double ace on 12 June 1917, by shooting down a German biplane near Berry-au-Bac. He thereby qualified for a new citation in the OFFICIEL COMMUNIQUE *which praised him as "a living example of boldness, of* SANG-FROID, *and devotion to duty." The Aero Club of France added to the honor by presenting him with its grand gold* medal.[42]

July and August 1917 were periods of intense aerial activity for Lufbery, yet he gained no confirmed victories in either of these months. He flew seventeen patrols between the 11th and 31st of July without success, and in August he flew every day but one that the weather would permit. On the 17th, he fought eight individual combats and on the 21st, flew four patrols on a single day.[43]

In September and October, the opportunities were plentiful and Lufbery, ac-

[40]Journal de Marche, 24 Apr. 1917.
[41]Thenault, 139; Edwin C. Parsons, another famous ace of the Lafayette Escadrille was the only other member of the squadron so cited. He received the Belgian *Croix de Guerre* and the *Croix de Leopold.*
[42]Hall and Nordhoff, I, 329.
[43]*Journal de Marche,* 11-31 July 1917; 1-31 Aug. 1917.

cording to his commander, in "marvelous form." His eleventh confirmed victory fell on 4 September and his twelfth only twenty days later. These impressive achievements, however, were overshadowed by his truly amazing performance the following month. After several encounters, he sent a German pilot to his death on 16 October and, only eight days later, in a brilliant example of combat flying, he fought seven German fighters in three separate engagements.[44] At least two reliable and independent sources insist that no less than six German machines fell victim to him that day. Capitaine Thenault, one of the sources, reported that "several French aviators supplied unofficial confirmation" but that only one victory was allowed since "the infantry was in full movement and the control services were naturally somewhat disorganized."[45]

If the French government, following its ironclad set of rules, was unable to award Lufbery more than one confirmation, it was more than willing to recognize the heroism involved. In short order, another citation appeared, this one describing Lufbery as "A remarkable pilot. A shining example of bravery, energy and boldness."[46]

On 2 December 1917, the anniversary of the Battle of Austerlitz and a great day for all true Frenchmen, Lufbery went out on lone patrol. At about 10 a.m. he found a German observation plane near Ailles and sent it crashing into a forest nearby. An hour and a half later, in the region of Laval, he found a German biplane and in a short but vicious battle, sent the pilot to join his dead comrades.[47] "I now have sixteen official German machines to my credit," he wrote to his family in Wallingford, "and many other unofficial. On December 2, I brought down two of them." As for his many decorations, Lufbery passed it off with the terse comment, "Now I am looking like a Christmas tree, medals all over my chest."[48]

Pencil Sharpener at Issodun

In January 1918, Lufbery, along with almost all of his fellow American pilots, transferred to the American Air Service. The timing, however, was inappropriate and the personnel management faulty. The transfer was on paper only and for more than a month, the Lafayette Escadrille existed in a sort of limbo, neither French nor American, literally civilians flying in French uniforms.[49] Then, when the transfer was finally consummated in February, at ranks less than that promised the Americans, Lufbery, now a major was given a desk job at Issodun.[50] There, he whittled on pencils, made little curlicues on his writing pad and "felt pathetically helpless in that den of the more or less typical kind of American officers."[51]

Relief finally came when he was transferred to the 94th Aero Squadron at Villeneuve in the Champagne sector. But French nor American, literally civilians flying in French uniforms.[49] Then, when the transfer was finally consummated in February, at ranks less than that promised again there was confusion and delay. Some of the men had machines but the aircraft had no guns. For more than a month, Lufbery taught his men acrobatics and took them on tantalizing patrols near the front lines.

> Well, [Lufbery told some of his old comrades] it's nearly a year since the United States declared war, and what do you suppose the 94th is doing? Waiting for machine guns. Six hundred million dollars appropriated for

[44] *Ibid.*, 1-30 Sep. 1917; 1-31 Oct. 1917.
[45] Thenault, 116; L'Colonel Charles Salesse, "Groupe de Chasse 11/15, Historique," 20. This document, an official unit history in typescript form, is in the Archives of the Service Aéronautique de l'Armée de l'Air, Versailles, France.
[46] Hall and Nordhoff, I, 329.
[47] *Journal de Marche*, 2 Dec. 1917.
[48] "Lufbery Vanquished," 42.
[49] Interv with Col. Rockwell, 1 Jan. 1960; Ltr, Maj. W. W. Hoffman to the author, 7 Dec. 1959. Maj. Hoffman was a member of the commission that helped arrange the transfer.
[50] Hall and Nordhoff, I, 335.
[51] *Ibid.*

the United States Air Service, and we're loafing around back of the lines because we can't get guns enough to equip a dozen planes.[52]

The guns finally arrived and the squadron began active patrolling on 10 April 1918, but by then there were few Germans around. Lufbery, now in a position to fly alone when he wanted, adopted his old practice of lone patrol. His ability to search out Germans led him to a final victory on 17 April 1918, in a combat that left him wet with sweat and weak with fatigue.[53]

Lufbery's Last Flight

About ten o'clock on the morning of 19 May, a three place German observation craft came within sight of Villeneuve where the 94th was stationed. Several American aviators attacked the plane but without success. Lufbery, who had watched the attacks with intense interest, could wait no longer. He commanded a Nieuport — his own Spad was out of commission — and climbed to the attack.

The ensuing battle was witnessed by a large number of spectators, among them Colonel William Mitchell. In his usual fearless but crafty way, Lufbery moved in close and fired several long bursts at the German. Then he swerved away and seemed to be working on his gun which had apparently jammed. After clearing the weapon, he again took up the attack. There was a long chatter of machine gun fire and suddenly the front end of his Nieuport burst into flames. In full view of several hundred people, Lufbery made several frantic attempts to slip the aeroplane and keep the flames from his body but to no avail. Without a parachute[54] and several thousand feet above the ground, Lufbery, who had often predicted that, given a choice, he would jump rather than ride a flaming machine to the ground, climbed from the cockpit, his clothes afire in a dozen places. After moving back along the frail fuselage until he could go no further, he hesitated, then jumped. In all probability, he was gambling on the million to one chance that he might land in a small stream that wound like a silver ribbon below him.

Lufbery fell across a picket fence in a poor peasant woman's flower garden, a scant hundred yards from the water that he hoped might save his life. By the time his fellow Americans arrived to pick up his broken body, friendly hands had lovingly covered the charred figure with blossoms.[55]

Lufbery was buried the following day in one of the most impressive ceremonies ever accorded a foreign hero on French soil. High French and American military figures sat among flowers furnished by government officials, poor peasants and French bordellos to lay to rest a brave airman.

> In all my life [one American airman wrote home] I have never heard "taps" blown more beautifully as on that afternoon. Even some of the officers joined the women there in quietly dabbing at their eyes with white handkerchiefs. Truly France and America had assembled to pay a last tribute to one of their bravest soldiers. My only prayer is that somehow, by some means, I may do as much as he for my country before I too go west — if in that direction I am to travel.[56]

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[52] *Ibid.*, 335-336.

[53] *Fraternité d'Armes Franco-Américaine*, 106.

[54] Parachutes were known at the time of Lufbery's death but were used only by balloonists. (Ltr, Col. Rockwell to the author, 18 Oct. 1960.)

[55] Parsons, 332-333. Lufbery's charred helmet, which is in the author's possession, is grim evidence of the terrible time and circumstances under which he met his death.

[56] Hall and Nordhoff, I, 338. By a tragic coincidence, Lieutenant Kenneth P. Culbert, the author of this letter, was killed in combat the day after it was written.

AIRPOWER IN THE CHACO WAR

by CAPTAINS DAVID H. ZOOK, JR. and WILLIAM M. CRABBE, JR.

THE CHACO WAR of 1932-1935 has remained the most enigmatic of American conflicts. Falling between the World Wars, it derived tactical inspiration on the ground and in the air, from the first world conflict and offered lessons for the second one. As a testing ground, however, it has generally been neglected in favor of the Ethiopian affair and the Spanish Civil War. The lessons of these latter conflicts, summed up as the superiority of offensive firepower, were more gravid and cogent for World War II than were those of South America's greatest war. This appears especially true in the case of airpower.

Because of topography and lack of air doctrine, the Chaco War confirmed the over-all lesson of World War I, the superiority of defensive firepower. This held true even though the art of maneuver was freed from the wire bonds of trench war. The Chaco was an infantryman's war. The cavalryman was forced to fight on foot. The utility of two offensive instruments, the tank and mobile artillery, was severely limited by the thick scrub. There remained the other new instrument, the airplane, and it fell victim to the confines of the narrow mind.

The Chaco War offers lessons for today. It was, to some extent, a limited war. In addition to the topographical limitation on forces and weapons, initially the war was limited in objective to the disputed region — the Chaco Boreal — which had sparked the conflict. The war was limited for one contestant, but not for the other. For Bolivia the Chaco was a desirable acquisition to be reserved for future exploitation in the hope of achieving a more affluent society. On the other hand, Paraguay required the region for her survival, or so she believed; consequently, she fought a total war, utilizing all her resources.

Bolivia, with greater population and material strength, with a better prepared, trained, and equipped army, was in 1935 forced to the peace table after a war of exhaustion. There were many reasons for her defeat but there was no question of her supremacy in aircraft — an advantage she failed to exploit. Given air superiority, little Paraguay, which won the limited objective through superior generalship and combat capacity, might well have broadened the conflict and dictated the peace. If the positive lessons of the Chaco had been recognized, airpower history in the thirties might have had a clean beginning rather than the criminal brand it acquired through the terror bombing of Guernica, Barcelona, and Badajaz in the Spanish Civil War and Mussolini's hut conquest of Ethiopia.[1]

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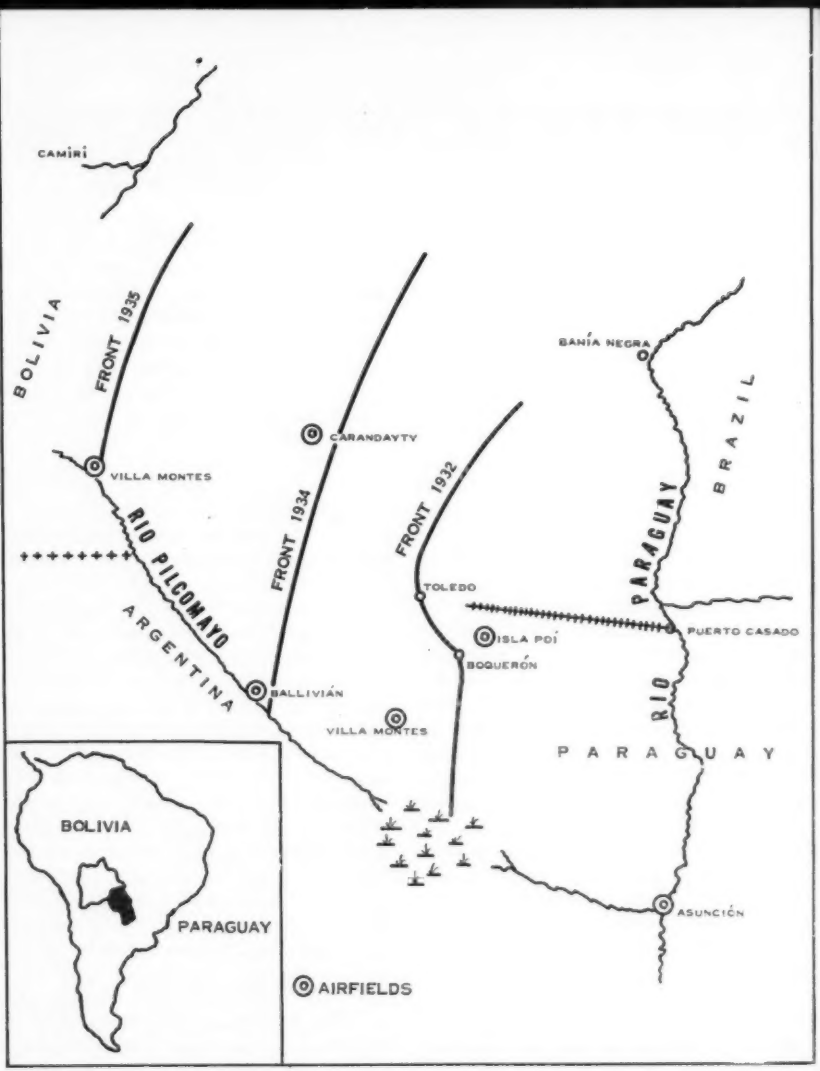
Antecedents

When Bolivia and Paraguay went to war in 1932 over the disputed Chaco Boreal, the first opportunity occurred in the Western Hemisphere to employ the airplane in anger. Like other Latin American nations, the contestants had watched global air developments closely.

[1]The great raid on Barcelona in March 1938 inflicted 900 civilian deaths. In Ethiopia, Italian flyers dropped 75 tons of bombs in a single day. Neither of these airpower demonstrations equalled the feat of air supply in Ethiopia, or the airlift by Germany of 9,000 Franco soldiers from Morocco to Spain.



Transport aircraft, then and now, appeared a solution to critical transportation problems in roadless country. In reality, the airplane was the answer to military problems as well, but each belligerent toyed with the weapon, unsure of its correct application.

Of the two participants in the Chaco, Bolivia displayed the earlier interest in airpower. Already in 1913, she began experiments with an 80 HP Bleriot aircraft, proving the feasibility of air operations in the rarified (13,000 feet) air of Alto La Paz, site of the now historic world's highest airfield. A school of military aviation opened in 1920 when a Curtis Wasp was assembled at La Paz under the direction of Donald Hudson, a Curtis "tech rep." Hudson was given a lieutenant colonelcy and the post of chief pilot of the nascent, four-pilot, Bolivian Air Force, but his Bolivian career was

short, ending in a crash on 19 May 1920. The suspicious, xenophobic Bolivians believed that being in the pay of foreigners "jealous" of Bolivia, he had deliberately crashed. But among his four pilots was a future air leader, Lieutenant Bernardino Bilbao Rioja, a 1918 graduate of the Chilean flying school.

In 1925 the School of Military Aviation reopened with Hans Haeverly of Switzerland as chief instructor and Major Bilbao Rioja as Commandant. In 1927 Jimmy Doolittle flew a Curtis into La Paz, successfully seeking orders for the company. Flights to the Chaco began in the same year. By 1928 the Air Force consisted of a Training Group and a War Group, the latter equipped with Fokker C-V and Breguet XIX recon-bombers capable of 140 MPH.[2]

Paraguayan airpower, on the other hand, dates only from 1926 when a French military mission opened a flying school with three Hanriot and two Morane Saulnier planes. The first class of nine flyers graduated in 1928. The following year, the Italian Colonel Ernesto Colombo brought to Asunción a Savoy Marchetti seaplane with which he began training naval aviators on the Río Paraguay.[3]

The Bolivian Air Force took an active role after 1928 in explorations of the remote, nearly virgin Chaco. In December, when war threatened over a frontier clash, combat air suffered an inauspicious debut by dropping duds on Bahía Negra, Paraguayan outpost town on the upper Río Paraguay. By January 1932 aerial reconnaissance with Vickers "Vespa" fighters was an integral part of peaceful Bolivian activity in the Chaco.[4]

[2]Colonel Julio Diaz Arguedas, *Historia del Ejercito de Bolivia* (La Paz, 1940), 85-101; Colonel Aquiles Vergara Vicuna, *Bernardino Bilbao Rioja* (La Paz, 1948), 85, 90, 110; C. G. Grey and L. Brigman, editors, *Jane's All the World's Aircraft* (London, 1928), 8b; 1929, 3b; 1931, 4b.

[3]Major Leandro Aponte B., *Cinquenta anos de aeronautica en el Paraguay* (Asuncion, 1957), 72-75, 90-92; Major Angel F. Rios, *La defensa del Chaco* (Buenos Aires, 1950), 63-68, 110.

Bilbao Rioja

Bilbao Rioja, who had ordered these planes in England, was one of South America's brightest airmen of the twenties and thirties. As early as 1920 he had written articles for the Bolivian *Revista Militar* which displayed considerable insight into tactical bombardment. He saw little value in long-range bombing due to the technological limitations of the day, and his belief that after the first mission the enemy would develop anti-aircraft defenses which would render future raids unprofitable. While in England he studied bombardment, navigation, and radio in professional schools. As a result of these studies, he published in Spain and Bolivia (at his own expense) several manuals on air warfare.[5]

When Bilbao returned to La Paz in 1929, he resumed his post as Director of the School of Military Aviation. Under Captain Banting of the RAF, he opened a new instructor pilots' course, himself logging over 600 hours of IP time. When war broke out in June 1932, Bilbao was serving as military attaché to Argentina. After the initial Bolivian aggression had cost an aircraft to Paraguayan ground fire, Bilbao was recalled from Buenos Aires to assume command of the Air Force in the combat zone.[6]

Colonel Bilbao Rioja immediately noted the incapacity of the theatre commander, a ground officer, for deploying airpower. After surveying the situation, he sought an interview to present his professional views. Ushered into the office of the Commanding General, Bilbao urged the bombing of Puerto Casado, the river port on the Río Paraguay where all of Paraguay's men and material tran-

[4]Diaz Arguedas, 517, 556-558; Colonel Oscar Moscoso Gutierrez, *Recuerdos de la guerra del Chaco* (Sucre, 1939), 43-44; Eduardo Arze Quiroga, ed., *Documentos para una historia de la guerra del Chaco* (La Paz, 1951), I, 185-202, 217-220.

[5]Vergara Vicuna, 145-147.

[6]*Ibid.*, 164-165; Seccion historia, Ayudantia General, *Los partes del conductor* (Asuncion, 1950), 10-12.

shipped from river boats to railroad. He recommended air strikes against the single-track, 100-mile jungle railroad on which the enemy was nearly 100 per cent dependent for supplies. Bilbao further suggested that enemy headquarters at Isla Poí, through which trucks hauled supplies from the railhead to the front, be subjected to regular bombardment. He advocated constant operations against the truck convoys as they crept along narrow dirt, scrub-brush-lined trails. And finally, he stressed the desirability of a strategic psychological warfare raid on Asunción to destroy enemy morale, and make clear the *capacity* of Bolivian airpower for terror bombing.

These sound advices, and probably the forceful manner in which dynamic Bilbao Rioja presented them, angered the General. He reddened and drew his pistol but, as Bilbao wrote later, "mine was already at his temple." Although timely intervention prevented bloodshed, Bilbao had failed to make his point, by word or weapon; the Commanding General continued to squander his air superiority in scattered actions.

Air War

In spite of its poor employment, Bolivia's excellently equipped air arm controlled the skies throughout the war. Its role was fourfold. Principally, it was devoted to reconnaissance, but in this capacity it labored under two handicaps. The observers were not well trained in aerial intelligence and consequently were sometimes inaccurate in their reports; worse, the ground-oriented major commanders all too often disregarded air intelligence. Another primary function was air resupply, usually with the Junkers trimotor-equipped transport group. Lack of parachutes and ignorance of techniques for packing airdrop supplies rendered this mission largely ineffective. A third role was psychological warfare—the dropping of leaflets on enemy troops. Finally, the Air Force was used in poorly coordinated support of ground operations. Victories over other aircraft in the Chaco were rare, principally due to the wariness of the poorly equipped Paraguayan Air Group.[7]

The Paraguayan Air Group made its first appearance with two squadrons, one each of pursuit and reconnaissance bombardment. The aircraft were Potez "25"s and Wibaults obtained in the late twenties. The latter proved a mechanical failure due to water cooling; the former were too slow and unmaneuverable to engage Bolivia's Curtis Hawks and Ospreys, at the time among the world's best combat planes. Five Fiat fighters, obtained to contest the Curtis, were all quickly lost. Consequently, although some ground support missions were flown, the Paraguayan air arm was chiefly confined to single-ship reconnaissance missions.[8]

The Bolivian Air Force flew almost daily, usually in four- to six-ship formations, and swept the entire front, providing virtually unmolested reconnaissance. This saved Bolivia from one of Paraguay's most daring plans — a strategic envelopment of the Bolivian army against the Río Pilcomayo. The plan, seeking a decisive victory of annihilation, was foiled when the partially completed road necessary for the maneuver was discovered from the air. Bolivia's largest air operation, however, occurred on 25 February 1933 when Bilbao Rioja led his three-squadron air group against Fortín Toledo. Taking off by night, he flew several hundred miles across the Chaco by pilotage for a dawn ground support strike.[9] Frustrated by the limits placed upon airpower, Bilbao shortly thereafter turned the Air Force over to a subordinate and went on to command first a

[7]Aponte B., 146; Vergara Vicuna, 336, 369-370; Colonel Carlos Jose Fernandez, *La guerra del Chaco* (Buenos Aires, 1956), II, 27-29; Colonel Julio Diaz Arguedas, *La guerra con el Paraguay* (La Paz, 1942), 187.

[8]Aponte B., 133, 137, 214, 147, 207-211, 242, 185; Rios, 186, 63-67, 171-173, 188-189; Frenandez, I, 187; Pablo Max Ynsfran, ed., THE EPIC OF THE CHACO. *Marshal Estigarribia's Memoirs of the Chaco War, 1932-1935* (Austin, 1950), 71-72.

[9]Vergara Vicuna, 315.

corps and later an entire sector in the ground war, distinguishing himself as his country's best field general.

In November 1934 Paraguay achieved a perfect double envelopment and strategic penetration which forced her enemy to retreat almost to the Andes. The withdrawal was covered by maximum air activity. Although a foreign participant[10] has claimed that Paraguayan soldiers died like vermin under his guns and bombs, the principal Paraguayan corps commander has confided to Captain Zook that the effect was negligible and that the Bolivian Air Force was a danger chiefly in its reconnaissance role. "In reality, they molested greatly but produced no great damage. This mediocre result of Bolivian aviation is perfectly explained by the enormous difficulty in the Chaco of localizing military objectives . . . dispersed and hidden in the . . . woods."[11]

Evaluation

Successive Bolivian supreme commanders had learned little from World War I. They attempted futile frontal assaults against defensively dominant bullet power, and overlooked the new third dimension, airpower. Although La Paz spent considerable sums on the most modern aircraft, and enjoyed absolute air supremacy throughout the war, the air arm was too often directed against poorly evaluated targets. The Paraguayan commander, José Félix Estigarribia, operating on interior lines, was always able to concentrate his forces at the decisive point to achieve local numerical superiority. In this manner Paraguay assumed the moral advantage, never to be relinquished, despite the fact that in the first battle of the war her army hung logistically by a thread. Bolivia had the perfect opportunity to test Bilbao's plea for interdiction. The single Paraguayan railroad, anchored at Puerto Casado, was a tactical airman's dream. Yet, it was never seriously threatened. Neither was there ever a serious attempt to break up enemy troop concentrations with aerial firepower. Paraguayan advances removed the railroad, Asunción and Puerto Casado docks, and river shipping, from the range of operations. Due to Roosevelt's arms embargo, longer range U. S. aircraft did not reach Bolivia in time to affect the war.[12]

Though Paraguay also lacked air doctrine—and her commanders commonly misunderstood airpower—her commanding general was more discerning. Estigarribia, had he possessed the equipment, might well have parlayed airpower into total (instead of negotiated) triumph. In 1935, Bolivia's supply line crossed the Río Pilcomayo over a single bridge at Villa Montes. Her army was entirely dependent for gasoline—lifeblood of modern forces—upon a single refinery at Camiri. Once again, the tactical air opportunity went unexploited, but this time not for lack of understanding. Estigarribia saw clearly what *should* be done, but he had no aircraft. Unfortunately, the League of Nations' arms embargo had prevented shipment from France of the twenty planes he needed. Thus for the victor, Paraguay, neglect of airpower stemmed from lack of equipment. Bolivia, however, enjoying every advantage, suffered a humiliating doctrinal defeat. The world should have profited earlier from her experience.[13]

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[10]Thomas Wewege-Smith, *Gran Chaco Adventure* (London, 1937), 155-156. Lt. Wewege-Smith, an English adventurer, was the only foreign pilot in the Bolivian Air Force. General Billy Mitchell was asked if he wished to get into the conflict, but declined.

[11]Aponte B., 150; quotation, Rios, 190-191; interview, Capt. Zook with Colonel Carlos Jose Fernandez, Buenos Aires, June 1960.

[12]Diaz Arguedas, *La guerra*, 183-185, 191; Vergara Vicuna, 200-204.

[13]Aponte B., 153; Rios, 190; Ynsfran, 197.

YOUNG "BILLY" MITCHELL AND THE "OLD ARMY"

CAPTAIN ALFRED F. HURLEY

HISTORIANS have rarely focused their attention on the development of the ideas of aviation's major figures. For example, the story of Brigadier General "Billy" Mitchell has had largely a sensational treatment. However, Mitchell's history, viewed from the aspect of an analysis of his ideas, offers some instructive insights. This article is an investigation of his views in the years before World War I. During this period Mitchell laid the foundation for his aeronautical ideas. Indeed, to understand this foundation and to appreciate fully the degree to which he was to become a convert to aviation in France, the historian must pay detailed attention to Mitchell's pre-war experiences.

A "Patrician" Enters The Army

The wave of war enthusiasm which swept America in 1898 prompted Mitchell to volunteer for service with the Army.[1] That he elected a service career after the war indicates the impact of the conflict upon the Army itself.

The pre-war Army had been a police force scattered along a rapidly disappearing frontier. Its personnel were men who in choosing a military career accepted an obscure life away from the mainstream of America, but the war promised to change all this. As Mitchell was to recall in later years, the Spanish-American War signified for him: "the opening of the heroic age of the United States. Our people were fired with the spirit of adventure such as had not seized America since the days of '49."[2]

There was more to it than just the spirit of adventure. America's new global role demanded preparation for warfare in the twentieth century manner. The life of the Army "house rat" which Mitchell detested now needed to be only the refuge of the unambitious.[3] The gifted, energetic officer could find a satisfying career in wrestling with the complexities of the latest technology whether in peace or in war. Without this new challenge in a military career, it was unlikely that a man of Mitchell's background could have been anything other than a wartime soldier.

Mitchell was decidedly a product of "patrician" America. The grandson of a highly successful financier and industrialist and the son of a U. S. Senator from Wisconsin, he was raised in comfortable circumstances. Mitchell resembled his grandfather in temperament, drive and personal ambition, and through his father he had access to a broader stage than Milwaukee could offer. His parents trained him to pursue a physically and mentally active life at "Meadowmere," the family's estate. His future roles as a champion horseman, international polo player, and (at forty-two years of age) holder of the world's speed record in an airplane, attest to the thoroughness of his physical development. The father's cultural breadth was reflected in Mitchell's training in the French language and

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[1]Levine, Isaac Don, *Mitchell, Pioneer of Air Power* (New York, 1943), 3-6 (hereafter referred to as *Mitchell*).

[2]William Mitchell, "The Opening of Alaska," unpublished mss., William Mitchell Papers, Library of Congress, Washington, D. C. (hereafter referred to as *Papers*), Box 20, 1. Quotations from the Mitchell Papers are made with the kind permission of Mrs. Lucy Gilpin, the General's daughter and literary executrix.

[3]Levine, *Mitchell*, 3.

in his early familiarity with military history. Also, of course, the family's means made it easy enough to formalize Mitchell's home training and personal interests in science and history. By 1898 he was a junior in Columbian College (later George Washington University) in Washington, D. C., though twenty years would elapse before he returned to college to finish his degree.[4]

Early Army Influences

Certain influences stand out in the formation of Mitchell's thought. In addition to the breadth of his early training, his service from 1898 through 1912 with an Army that was moving physically, technically and intellectually away from the parochialism of its constabulary days, left a permanent mark upon his ideas.

As the Army moved physically out onto the world scene, Mitchell moved with it. A large portion of his career from 1898 through 1912 was spent overseas. In addition to five tours in Alaska, Cuba and the Philippines, he made personal trips throughout the Far East, Europe and the Caribbean area. All these trips had a military focus. In the Far East, he inspected the Russian, Japanese, and some of the various Chinese armies. He also visited the battlefields of the recent Russo-Japanese War. Even the most personal trip of all, his honeymoon, was spent — in one of his biographer's words — "with an eye to Caribbean defenses in Mexico and Cuba."

His travels naturally made him conscious of America's new position in the world. Field service in America's new empire, including his part in the pacifications of the Philippines and Cuba, dimmed any romanticism he may have had about them.[5] The new territories were property to be kept and defended, if possible. His contacts with the Japanese, in particular, convinced him that there were others ready to take what the United States did not defend. An effective defense, in his eyes, could rest only on force.[6]

The increasingly technical nature of this force held his attention from the beginning of his career. The major reason for this was his membership in the Signal Corps, perhaps the most forward looking of the Army's branches. Led by such modernizers as Major General Adolphus Greely, the Signal Corps investigated the latest technological inventions—among others, the balloon, the telegraph, the airplane, the dirigible, the automobile, and the camera.[7]

Despite his youth, Mitchell won recognition for his work in the Signal Corps' completion of the Alaskan telegraph system in 1903. This feat, a milestone in the modernization of the territory, was accomplished in the most dramatic of circumstances. Mitchell's realization that Nome could henceforth communicate with New York at the speed of light was the first in a series of his Signal Corps experiences which shrunk the world for him.[8]

Upon his return from Alaska, he continued to build up a reputation as a technical expert. He was a key figure in military experiments with the automobile and the camera. He organized the first signal company and participated in the development of the Signal Corps School at Fort Leavenworth, Kansas.[9] His work brought home to him a major facet of twentieth century warfare, that of specialization. The personnel of his branch, he learned, would have to be "extremely well educated." They needed to be spe-

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[4]Ibid., 9-17; Ruth Mitchell, *My Brother Bill* (New York, 1953), 23-25, 29-32.

[5]Levine, *Mitchell*, 27-81.

[6]William Mitchell, "Report of Observations in Manchuria, Korea and Japan" (hereafter referred to as "Report of Observations") in National Archives, World War I Records, Army War College Division Files, General Staff (hereafter referred to as NA, WWI, WCD, GS) Report 7027-1, 2 January 1912.

[7]See Mitchell's laudatory biography *General Greely* (New York, 1936).

[8]William Mitchell, "The Opening of Alaska"; "Building the Alaskan Telegraph System," *National Geographic Magazine*, 1904, 357-362.

[9]Levine, *Mitchell*, 73-75.

cialists not only in their field but also in the military art.[10]

Mitchell in a 1906 article demonstrated the range of his technical interests. It is necessary only to cite the title: "The Signal Corps with Divisional Cavalry and Notes on Wireless Telegraphy, Searchlights and Military Ballooning."[11]

His remarks on military ballooning have special interest. The Signal Corps had successfully used balloons in the Civil War. Interest had lagged thereafter, but in 1893 it was revived. A single balloon sent to Cuba during the Spanish-American War did yeoman service.[12] After the war when Santos-Dumont, the Brazilian aeronaut, and Thomas S. Baldwin, an American, began experimenting with dirigibles, new possibilities arose. Mitchell, along with all other Signal Corps officers, had to study such developments in preparation for his promotion examination.[13] It was common knowledge that European inventors were suggesting that the dirigible had a potential for reconnaissance, transport, and even strategic uses.[14]

Mitchell's views are suggestive of ideas that he later advocated vigorously. The dirigible, he predicted in his 1906 article, might:

> *course at will over a battlefield, carry messages out of a besieged fortress, or sail alone above a beleaguered place, immune from the action of men on the earth's surface. By towing another balloon, loaded with explosive, several hundred pounds of gun cotton could be dropped from the balloon which it is towing in the midst of the enemy's fortifications . . .*

Because objects in the water could "be perceived at a great depth," from an altitude of "one hundred to two hundred feet," he saw a possibility that dirigibles might act "as scouts for the navy to detect the presence of submarine vessels." He closed the article with a prediction that "conflicts no doubt will be carried on in the future in the air, on the surface of the earth and water and under the earth and water." However, Mitchell saw the technological limits yet existing. No one had figured out how to compensate for the dropping of "a pound or two" so as to prevent the dirigible from rising so fast that its envelope would crack. Until this problem had been overcome, he implied, there could be no talk of bombardment from a dirigible.[15]

Mitchell had no connection with his branch's early work in aeronautics, formalized by the establishment on 1 August 1907, of its Aeronautical Division.[16] As a Captain and a married man since 1903, he was legally ineligible for military flight training. More important, there is no evidence that he ever expressed any ambition to fly before 1916.[17] His remarks about military ballooning suggest no more than the range of an active mind at a time when the entire Army, and more especially the Signal Corps, had been challenged to consider the military implications of a fast-moving technological revolution.

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[10]William Mitchell, "The Signal Corps With Divisional Cavalry and Notes on Wireless Telegraphy, Searchlights and Military Ballooning," *U. S. Cavalry Journal*, April 1906, 696 (hereafter referred to as "The Signal Corps With Divisional Cavalry . . ."). [11]*Ibid.*, The article was published under the title of *Field Signal Communications* (Second Lecture), Fort Leavenworth, 1906. [12]Juliette Hennessy, *The United States Army Air Arm, April 1861 to April 1917*, USAF Historical Studies No. 98 (Air University, 1958), 1-19 (hereafter referred to as *The United States Army Air Arm*). [13]Levine, *Mitchell*, 69-70, 72-75. [14]*The United States Army Air Arm*, 15. [15]"The Signal Corps With Divisional Cavalry. . . ," 694-696. [16]Mitchell is not even mentioned in the detailed history of American military aviation before 1914 by two of its key figures, Col. Charles Def. Chandler and Brig. General Frank Lahm, *How Our Army Grew Wings* (New York, 1943). [17]*The United States Army Air Arm*, 233; cf. Mitchell's approving commentary on the existing law in 1913 "Hearings in Connection with HR5304," Committee on Military Affairs H. R. 63rd, Congress, 1st Sess., Washington: GPO, 1913 (hereafter referred to as "Hearings in Connection with HR5304"), 84.

Lieutenant "Billy" Mitchell

The publication in 1904 of the long neglected manuscript of the late General Emory Upton, *The Military Policy of the United States*, had also aroused the interest of the active minds in the Army in a modernization of their service.[18] Upton had advocated a Continental Army Plan, the development of a modern, democratic, and federalized military system based on conscription.[19] Elihu Root, President Theodore Roosevelt's Secretary of War and agent in the modernization of the Army, rescued Upton's manuscript from the musty files and it was reprinted four times between 1904 and 1917. The book's ideas dominated the intellectual climate of the Army down to the first World War.[20] As will be seen, the ideas in the book had a major impact on Mitchell's pre-war thought.

In 1908, four years after Upton's book appeared, Mitchell had a chance to imbibe directly the new intellectual currents in the Army. He was posted as a student to the year-long course of the Army School of the Line at Fort Leavenworth, and then was permitted to stay on for a second year in the Staff College course. The Commandant's reports for 1908-1909 offer tangible evidence of how far Root's educational reforms had moved the Army's thought from that of its constabulary days. The entire curriculum, climaxed by the Staff College's annual ride through the Civil War battlefields, emphasized preparation for mass warfare. However, it was warfare waged in the Upton tradition, in the defense of the United States.[21]

The major research problem assigned to Mitchell and a group of his fellow officers at the Staff College indicated the mood of the Leavenworth faculty:

> War being imminent with some combination of first class European powers, the U. S. Government has decided to put an army of 500,000 men in the field exclusive of coast artillery. As our navy is assumed to be inferior to the combination of our enemies, invasion is anticipated along the Atlantic seaboard.

The second sentence in Mitchell's share of the problem is a reminder that this, after all, was 1909: "Work out the organization of this force completely in detail. Show the number of horses and mules required."

Mitchell's solution is not available, but he may well have depended upon ideas which he had drawn from his favorite course at Leavenworth, which was Military History. Civil War battles, including Donelson and those on the Peninsula, the European experience at Austerlitz, Waterloo, Metz, and in South Africa at Paarderberg, all came under scrutiny that year.[22]

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[18]Richard C. Brown, "General Emory Upton, The Army's Mahan," *Military Affairs*, Vol. XVII (1953), 127-129.

[19]Upton, Emory, *The Military Policy of the United States* (Washington GPO, 1912), x-xv.

[20]Brown, "General Emory Upton, The Army's Mahan," 129-130.

[21]*Annual Report of Commandant, Army Service Schools* (School of the Line) (Fort Leavenworth, 1908), 24-33; *ibid.* (Staff College, Fort Leavenworth, 1909), 55-60.

[22]*Ibid.*, (1909), 57.

Mitchell's incentive to realize the significance of preparation for large scale warfare could in part have come also from "The Conduct of War" course at Leavenworth. The course drew its name from the text by General Colmar von der Goltz, the German theorist.[23] A distillation of contemporary European thought, the book paid much attention to strategy and tactics; however, those of its ideas bearing on a theory of warfare are the more important here.

To von der Goltz, modern war required massive peace-time preparation and the complete and speedy commitment of all resources at the outbreak of war.[24] This was to be done in the hope of quickly mounting such an overwhelming force that the enemy would realize his cause was hopeless. A war of too great a duration would damage the victor almost as much as the vanquished.[25] The overwhelming use of force at the outset was of critical importance in order to prevent an enemy from calling upon its endurance instead of equating initial losses with defeat.[26]

Von der Goltz's attention, of course, was directed chiefly to European problems. His stress on aggressive war did not fit exactly the American assumption that the primary responsibility of the U. S. Army was defense of the western hemisphere; yet in the twentieth century, could even the most peace-loving nation with world-wide interest, ignore his ideas? One question was: How much attention did the United States, separated by great distances from the other major powers, have to pay them? Mitchell, aware of America's world-wide responsibilities and the ever increasing number of technological advances, could and would argue that the ideas of theorists such as von der Goltz were becoming more and more meaningful for the United States — meaningful enough to require the establishment of a national military policy.

Upon finishing the Staff College course in 1909, Mitchell began a series of routine duty assignments in the Philippines, Wyoming, and Texas that were climaxed at the end of 1912 by his appointment to a three year tour on the General Staff in Washington, D. C. At thirty-two, he was the youngest officer ever appointed to the Staff.[27]

Mitchell and National Military Policy

Mitchell's comments later in his life about his abhorrence of officers who were proficient only in paper work suggests that he was not really compatible with a General Staff assignment.[28] Nevertheless, as much as two years before his assignment to the Staff, he had begun to demonstrate an interest in high level policy problems that helped to mark him as an unusual junior officer. Between 1912 and 1915, he wrote a series of five papers on national military policy. The first two were written in the field in 1912 and sent through military channels to the General Staff; the third was written for the Staff in 1915 and the remaining two were possibly published in 1913 and 1915.[29] All the papers reflect his world view, his technical bent, and his intellectual debt to Upton and the school at Fort Leavenworth. The papers are significant primarily as landmarks in Mitchell's personal development.

His experience on the Philippines tour of 1910-1911 prompted him to sound in the first two papers a theme maintained throughout the series. America's isolation, he said, was rapidly disappearing;

[23] *Ibid.*, 56.

[24] Colmar von der Goltz, *The Conduct of War*, Joseph T. Dickman, tr. (Kansas City, 1896), 28.

[25] *Ibid.*, 19.

[26] *Ibid.*, 28.

[27] Levine, *Mitchell*, 78-81.

[28] William Mitchell, "From Start to Finish of Our Greatest War," mss., 35, *Papers*, Box 1 (hereafter referred to as "From Start to Finish. . .").

[29] For the 1912 papers cf. footnote 6 and "Report to Adjutant General, U. S. Army," March 22, 1912 in NA, WWI, WCD, GS, Report No. 7027-2; for the 1915 Staff paper, of "Our Faulty Military Policy" Army War College [mimeographed] 1915) in *Papers*,

in its furthermost possessions, there had never been any isolation. The acquisition of the Philippines brought the United States next door to the Japanese on Formosa. Mitchell's own investigations of the minor islands between the northernmost point of the Philippines and Formosa itself convinced him that there was not even an effective water barrier between the two points.[30] More importantly, American diplomatic policies in the Far East were not isolationist. The United States had chosen to antagonize the most advanced of the Oriental nations, Japan, through a policy of discrimination against her nationals who had emigrated to America. Further, the constant display of American interest in Korea, Manchuria and China ran counter to Japanese plans. Were the United States to undertake a full scale effort to trade with China, something which Mitchell thought the expected completion of internal expansion would obligate America to do, Japanese opposition could result. No matter how one looked at it, the conclusion stood: "That increasing friction between Japan and the United States will take place in the future, there will be little doubt and that this will eventually lead to war sooner or later seems quite certain."[31]

Mitchell never expressed qualms about American pursuit of an Open Door Policy or involvement in quarrels over the status of Manchuria or Korea. His main concern was that of the soldier: if America wished to act like a first-class power, then she should make commensurate military preparations.

Mitchell demonstrated in the very first of these papers a tendency which marred much of his later writing. This was a tendency to overstate his case. In referring to the idea of a Continental Army, he was overly sanguine in stating: "That we can easily remedy our present defenseless condition without disturbing our political organization or tradition and at comparatively little expense is also quite evident."[32] In writing of the Japanese, Mitchell was quite uncritical in stating that: "They appear confident that they would have no trouble taking and holding our Pacific coast."[33] He left no doubt that he agreed with this because he said in the same paper:

> *In case of war with Japan it is difficult to see how we could prevent an occupation of our Pacific coast states by Japan's armed forces. The Japanese know this as well as we do. In fact, we are practically helpless, should this occur.*

His readiness to attribute tremendous transport capabilities to the Japanese Navy, caused some unknown person (presumably a General Staff reader) to pencil in a large question mark next to his statement of the Japanese view quoted above.[34] Perhaps, Mitchell saw that question mark when he reported for duty on the General Staff in 1913. Whether he did or not, the disciplined environment of the General Staff seemed to have been another formative influence on Mitchell's ideas. Henceforth, in almost all his writing within military circles, there was a noticeable restraint. This was a feature, it should also be emphasized, of his limited published work until 1920, when he began to engage in public controversy.

He was only a witness to the major controversy on military policy which took place in the United States shortly after the outbreak of World War I. The state

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Box 24; for the 1913 and 1915 papers, cf. the untitled paper in folder marked "Continental Army Paper—1913" in *Papers*, Box 30 (hereafter referred to as "Continental Army Paper"), and "National Organization for War" in *Papers*, Box 45. For evidence that one or the other of the last two papers may have been published cf. the remarks of Representative Kenneth McKellar of Tennessee about "Captain Mitchell's article," *Bill to Increase the Efficiency of the Military Establishment of the United States*, Committee on Military Affairs, H. and R., 64th Cong., 1st Sess., January 6 to February 11, 1916, 130-131.

[30] "Report to Adj. Gen. U. S. Army," 79-80.

[31] "Report of Observations," 75.

[32] *Ibid.*, 76.

[33] *Ibid.*, 50.

[34] *Ibid.*, 75.

of American preparedness for war on the scale being exemplified in Europe became a central political issue. A faction led by Theodore Roosevelt brought Upton's ideas from their Army habitat into the public arena.[35] Upton's Continental Army Plan was the solution advanced by the participants in the so-called "Preparedness Movement," and they quickly enlisted a host of supporters from both major parties. Mitchell, like most of his Army brethren, already committed to the plan, continued to write papers in its defense.

Mitchell saw the plan as a revolutionary, yet politically practicable and thoroughly efficient, way for the United States to maintain a military posture. He realized that the plan demanded a major reorientation in American thinking. In previous years there had been:

> *A strong feeling among the people that a military establishment is unnecessary, out of keeping and out of place in a country such as ours. This feeling is, of course, traceable to an impractical idealism, the result of years of peace.*[36]

There had been, too, a very practical reason for so acting and that had been national trust in the great distances separating the United States from the major powers of the world. Mitchell noted that the rapid advance of science "as exemplified in transport methods and means which daily bring us closer to prospective enemies" should destroy that trust.[37] No longer should distance be measured in miles; measurement in time was now the way to do it.[38]

In a 1915 General Staff study, he meticulously evaluated the forces which each major power in the world could bring against the United States. An Allied defeat in the war meant to him that Germany, with a superior fleet, could eliminate the United States Navy within sixty days even though the Navy planned to withdraw as far south as the Caribbean in order to attack the flank of any invader. With the Navy out of the way, the American coast lay open to an invasion which Germany and her allies' transports could sustain.

This was not an argument on his part for joining the Allies, but rather for developing a system of defense in the light of what the latest technology could do.[39] His noncommittal attitude toward alliances in this case was a mark of the "a-political" tone which characterizes much of his work. The American military's job was to study in detail every possible enemy and combination of enemies and the strength they could bring to bear against the United States. On the basis of these studies, the military was to note all of the nation's military deficiencies and report them to the civilian leadership.[40] The specific job of Congress was to let the people know what these defects were and what it was doing to remedy them. That was the way the American system worked and he was quick to emphasize that any proper military policy must "not disturb our political organization or traditions."[41] The Continental Army Plan, with its provision for a minimum standing army, and for a speedily mobilizable reserve developed through a system of universal military training, was a thoroughly democratic approach.

The whole proposition held out the promise of genuine efficiency to Mitchell. He had a thirst for a businesslike approach to military organization that was worthy of his grandfather. As Mitchell saw it, the plan had the virtues of minimum costs and managerial soundness.[42] The traditional state control of the militia was inefficient. The federal control proposed in the plan appealed to him not only because of his regular army prejudice but more importantly because it

[35] Arthur S. Link, *Wilson and the Progressive Era* (New York, 1954), 179-196.
[36] "Our Faulty Military Policy," 21.
[37] *Ibid.*, 7.
[38] "Continental Army Paper," 15.
[39] "Our Faulty Military Policy," 3-5.
[40] *Ibid.*, 21.
[41] "Report of Observations," 76.
[42] *Ibid.*, 76-78.

satisfied his fetish for efficiency and rationalization.

The managerial role of the twentieth century officer fascinated Mitchell. He complained of the regular Army's inability to handle large masses of troops and to provide the requisite organization. Most of its officers lacked the breadth of view to think in the terms which Leavenworth suggested to them because their practical experiences had only been in the constabulary type of army duty.[43] Mitchell was, as his service in France later showed, ever ready to act as the "Great Captain" of any enterprise. Management concepts such as the "span of control" were basic to his outlook.[44] Symmetry in organization appealed to him, as did the need to coordinate the efforts of the separate armed services. In one of his 1915 papers, he vigorously supported the current proposals for a Council of National Defense by maintaining that

> one building should contain the council of national defense in the center; one wing a naval war college and a naval general staff; in the other wing an army general staff and army war college. We would then have the whole national defense brains, so to speak, under one roof and the duties of the two services could be correlated.[45]

As Mitchell saw it then, a modern military policy for the United States required that the United States "(1) prepare for war in time of peace; (2) make our preparation commensurate with what military strength our enemies are prepared to bring against us; and (3) adopt a military system based on the obligation that the individual owes to the state." This could only be accomplished by giving "the military establishment its proper place in the government" and by fully coordinating American military efforts in an organization such as the Council of National Defense.[46] These ideas flowed from his recognition of the need for power behind foreign policy, the role of the military within the American system, and the managerial role of the military leader in modern warfare. These concepts must be added to his world view, his technical interests, and his total intellectual debt to Upton. Along with his Leavenworth and his General Staff training, they are the influences which helped him to shape his appraisal of aeronautics.

Mitchell's Interest in Aviation Begins

Mitchell persisted in his wholehearted acceptance of the mass army concept into 1915. Inveighing against those who rejected the concept and put their trust in technological panaceas that "shall be so deadly and destructive as to make war impossible," he asserted in a January, 1915 paper that fundamentally "only human blood and bone is capable of doing" the job in modern warfare.[47] Mitchell saw this as the lesson of the contemporary European conflict:

> The present European war has demonstrated again beyond a doubt the necessity for exactly the sort of organization which the European nations have striven to perfect during the last century. In wars of the future, materiel will play a very important part, but in the last analysis, the side will be successful which can supply for the longest time well trained and disciplined officers and men for its field armies.[48]

Although these were his sentiments in early 1915, Mitchell was not too far away in time from identification with a different view.

As a Signal Corps representative on the General Staff, he inevitably came into contact with matters affecting his

[43] "Continental Army Paper," 15-17.

[44] For a contemporary example, cf. his testimony in "Hearings in Connection with HR5304," 82, where he uses the "span of control" argument against separating the Aviation Section from the Signal Corps.

[45] "Our Faulty Military Policy," 23.

[46] *Ibid.*, 21.

[47] "National Organization for War," 8.

[48] *Ibid.*, 12.

branch's small aviation section. Also, as the officer made responsible for collecting all the information coming into the Staff about the Balkan Wars of 1912-1913 and then the great European conflict, he had many opportunities to observe the relatively rapid strides of foreign aviation.[49] Nevertheless, his attitude toward aeronautics in the years from 1913 down to about 1916, was quite detached. His approach was that of the high level planner evaluating one category in the inventory of a Signal Corps that would some day support a mass army. He wrote only occasionally on the subject and then probably at the request of his superiors.[50]

His reaction in 1913 to one of the earliest attempts to put aviation into a separate branch was consistent with his position as a member of the Signal Corps. Mitchell testified before a Congressional hearing that the Signal Corps and aviation were in a perfect equation. Aviation was at best a reconnaissance device; hence, it was an integral part of the Signal Corps communication system.[51] *Any other ideas as to aviation's employment had yet to be established. He declared:*

> Now the offensive value of this thing has yet to be proved. It is being experimented with—bomb dropping and machines carrying guns are being experimented with but there is nothing to it so far except in an experimental way.[52]

Indeed, many other future aviation leaders, including the then Lieutenant Henry R. "Hap" Arnold, agreed with Mitchell's viewpoint.[53] Congress responded with legislation in 1914 keeping aviation in the Signal Corps, changing the title of the Aeronautical Division to that of the Aviation Section and making minor improvements in the status of its personnel and equipment.[54]

The political pressures generated by the "Preparedness Movement" did much to force Mitchell to study aeronautics more closely. Fearing that the Republican party would completely capture the preparedness issue, President Woodrow Wilson reluctantly directed his Secretaries of War and the Navy, Lindley M. Garrison and Josephus Daniels on 21 July 1915 to initiate an investigation of the nation's preparedness. They in turn ordered the Army and Navy General Staffs to formulate a program to be submitted to Congress in 1916.[55]

Mitchell drew the task of preparing a survey of American aviation needs. The paper on the subject, which he finished in November 1915, has the distinction of being one of the earliest comprehensive statements of American military aviation policy. Published in pamphlet form by the War Department, it was the only such statement by Mitchell to which the department ever gave its approval.[56] His study was, in effect, a full-scale investigation of aviation as it had been developed by others. He remained firmly committed to a reconnaissance role for aircraft under the control of the Signal Corps; hence, his superiors could fully support what he said. Indeed, they were already putting into force the ideas he expressed.[57]

In the pamphlet, Mitchell theorized

[49]Levine, *Mitchell,* 81-82.

[50]Cf. the two Memoranda for Chief, WCD, July 22, 1913 in NA, WWI, RG 18, File 3219; Memorandum (in draft) with Mitchell's dictation symbol (WM) prepared for signature of General William Crozier, Chief of Ordinance and Chief of War College Division (no date, probably 1913) in *Papers,* Box 34; also in *ibid.* is a paper "Notes Concerning a Proposed Aeronautical Branch, Signal Corps, U. S. Army" (no date); for the fifth paper, cf. footnote 56.

[51]"Hearings in Connection with HR5304," 88.

[52]*Ibid.,* 77.

[53]*Ibid.,* 91.

[54]*The United States Army Air Arm,* 109-110.

[55]Link, *Wilson and the Progressive Era,* 174.

[56]*Military Aviation,* War Department Document, No. 515, Army War College, Nov. 1915 (published GPO, 1916) (hereafter referred to as *Military Aviation*). No author is listed on the pamphlet; however, the National War College Library's catalogue credits Mitchell with the authorship.

Captain "Billy" Mitchell, with a Major Noyes, at work on a Signal Corps problem.

that aviation would be a particularly valuable adjunct to the Army, "the second line of defense," in the event that the Navy, "the first line of defense," should fail to stop an invading enemy. Specifically, aviation attached to harbor and mobile coast defenses within the continental United States and in our overseas possessions would be useful:

(a) for reconnaissance. . . .
(b) for preventing hostile aerial reconnaissance,
(c) for destroying hostile aircraft and for offensive work against enemy submarines and other vessels, including the interruption of enemy mining or countermining operations,
(d) for aiding in spotting the fire of coast artillery both against ships and against any invading force that may invest the seacoast fortifications.[58]

For these purposes he saw an urgent need to build up the aviation service.[59] Many more personnel and planes than the 46 officers and 243 enlisted men and 23 aircraft that the Army had in 1915 would be needed.[60]

A scandal in the Aviation Section in the spring of 1916 gave Mitchell a chance to play a part in developing the ideas in his pamphlet. The head of the Aviation Section, Colonel Samuel Reber, incurred the wrath of Secretary of War, Newton D. Baker, for his failure to control certain airmen whose conduct had come to the attention of President Wilson. The Army's leaders thought their aeronautical organization had far too many junior grade mavericks and not enough mature senior regulars to keep them in line. Mitchell was assigned on 3 April 1916 as a temporary replacement for Reber and then as deputy to the new permanent head, Lieutenant Colonel George O. Squier.[61] As Mitchell later succinctly put it, he was given the job "in order to straighten things out."[62]

The preparedness controversy was resolved somewhat by the passage of the National Defense Act in 1916. The Continental Army plan was not adopted but

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[57] *The United States Army Air Arm*, 79-85, 101, 128-129, 133.
[58] *Military Aviation*, 6.
[59] *Ibid.*, 18.
[60] *The United States Army Air Arm*, 156.

the new legislation and the accompanying appropriations were milestones in American military aviation's history.[63] Mitchell's chief biographer has credited him with being one of the leaders in gaining the aviation appropriation.[64] His clear-cut statement of a role for aviation in the 1915 pamphlet should have helped. Much more important, however, than the efforts of any junior officer must have been the impact on Congress of the deficiences in the air support for Pershing's Mexican Border Campaign and the increasing willingness of the American people to accept the preparedness theme.

The new legislation had a salutary effect on Mitchell's career since it abolished the old restriction of flying duty to bachelor lieutenants under thirty.[65] Mitchell, by this time a major, took up flying training under civilian instruction in September 1916.[66] It later turned out that Mitchell, though he became one of the United States' best-known military pilots, had to pay $1470 out of his own pocket for his 36 flights and almost 25 hours of flying instruction. The Comptroller of the Treasury ruled in March 1917, that although officers in Mitchell's category could now fly, the existing statutes provided no funds for their instruction under civilian auspices. In any case, Mitchell was now assured of an active aviation career. As an officer who had proven his abilities in the Army and who was a flier himself, he enjoyed the support of both his superiors and his juniors.

Mitchell testified in the twenties that he had decided at some unspecified time before American entrance into the war that if it lasted until 1919 or 1920, "aeronautics would decide it." The other available evidence does not fully establish whether or not he did hold this view, but it does demonstrate that he had progressed far enough in his thinking by late 1916 to see enough possibilities in aeronautics to direct his career accordingly. By the end of 1916, he felt sure that the entrance of the United States into the war was not far off and applied for duty as an observer in Europe. In March 1917, he was on his way overseas.

Conclusion

Mitchell went abroad convinced that his career-long premonitions about America's inability to fight a modern war were well justified. He knew that his and his fellow professionals' advocacy of the peace-time preparation of a Continental Army had gotten nowhere. The United States would need all the help it could get from European specialists in training its hurriedly formed levies; in fact, the nation would be, in his mind, completely dependent upon them. Once he got to France, he became convinced that even the adoption of a mass Army was no longer the full solution to the question of a proper military policy for a twentieth century America.

The space above the earth now presented a completely new dimension in warfare. He was by American standards a specialist in aeronautics, but in reality, he had in March 1917 only an inkling of its potential by contrast to the picture which the war was to give him. By the end of the war, he had formulated a conception of aeronautics which made him believe that in the future it would be the major answer to the military problems evoked by America's world-wide responsibilties and the increasing technological advances of the twentieth century.

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[63] *Ibid.*, 153-156.
[64] "From Start to Finish. . . ," Preface, 3.
[65] Link, *op. cit.*, 184-188; *The United States Army Air Arm*, 154-155.
[66] Levine, *Mitchell*, 87.
[65] *The United States Army Air Arm*, 233.
[66] Levine, *Mitchell*, 86-87, incorrectly states that Mitchell learned to fly in 1915-1916. My later date is based on the bill for Mitchell's training from the Curtiss Flying School to the Aviation Section, 1 March, 1917, in *Papers*, Box 6.

THE DISAPPEARANCE OF AMELIA EARHART

CAPTAIN PAUL L. BRIAND, JR.

The Woman and the Record

AMELIA EARHART was America's greatest woman flier. In 1928 she was the first woman to fly across the Atlantic as a passenger; in 1932 she flew across the Atlantic again, this time alone; in 1933 she broke her own transcontinental speed record from California to New Jersey; in 1935 she conquered part of the Pacific, from Hawaii to California. Not satisfied with these accomplishments she wanted to face the one great challenge which remained: the world. She made her plans to girdle it at the equator—a 29,000 mile flight. No one had done it before. Not even Lindbergh.

In May of 1937 Amelia Earhart set out on her world flight from Miami. With her in the twin-engine Lockheed Electra was one of the best navigators available, a pioneer from the Pan American flights to the Orient, Fred Noonan. By July, after flying twenty-two thousand miles in only forty days, they had reached Lae, New Guinea, the last stop before Howland Island, Hawaii, and home. Of these legs the most difficult was the 2,556 miles to Howland, a tiny speck of island amid an eternity of ocean. To reach it the navigation would have to be perfect. The fliers never reached their destination. Although the Coast Guard cutter *Itasca* had been anchored off Howland to help beam them in, Amelia Earhart and Fred Noonan were lost somewhere over a possible area of 450,000 square miles in the South Pacific.

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Amelia Earhart

The Navy ordered a search. For sixteen days the aircraft carrier *Lexington* with its full complement of 63 planes, the battleship *Colorado*, the four destroyers *Perkins*, *Cushing*, *Lamson*, and *Drayton*, the minesweeper *Swan*, and the cutter *Itasca*, relentlessly combed the Pacific. Not a trace of the fliers was turned up. The world was stunned.

One of the great mysteries of the century has remained unsolved. Now follow the last two chapters from the biography, *Daughter of the Sky: The Story of Amelia Earhart*, in which new light is shed to help solve the mystery. First is the fog of rumors which closed over the disappearance, and then the beacon of fact which led the author to his startling conclusion.

The Fog of Rumors

The first great rumor, which had gained widespread acceptance, was that Amelia and Fred were prisoners of the Japanese. They had flown over islands in the Japanese mandate which were being illegally fortified, the plane had been shot down by antiaircraft guns, the pilot and navigator had been taken and held as spies.

This Japanese-prisoner story still persists after more than twenty years, largely because of a movie released in the early forties, while World War II was at its highest pitch and anti-Japanese feeling at white heat. The film, *Flight for Freedom,* starring Rosalind Russell and Fred MacMurray, told the story of a famous American woman flier, "Tonie Carter," who had been asked by the United States Navy to "get lost" in the South Pacific (actually, to remain in hiding at Howland Island), so that Navy planes could take photographs of illegal Japanese fortifications while "looking" for her.

In the movie, Tonie Carter's navigator was an old beau, "Randy Britton," to whom she had once been engaged. This gave rise to another rumor: Amelia Earhart and Fred Noonan were in love, and decided to find a lonely Pacific island where they could live out their idyllic love "happily ever after." Incensed by the broad allusions of the film, George Palmer Putnam filed suit. The movie company settled out of court.

There was the possibility, Dr. Brittain later suggested, that Amelia was a prisoner of the Japanese, even as late as 1944, and that one day soon she would be liberated by the advancing United States Marines.

"We got the definite feeling," Dr. Brittain was quoted as saying, "that Miss Earhart had some sort of understanding with government officials that the last part of her voyage around the world would be over some Japanese islands, probably the Marshalls."

Amelia's mother, Amy Otis Earhart, has long maintained that her daughter was on a secret government mission and that she was captured by the Japanese. This is Mrs. Earhart's belief although she has no official basis for it.

The Navy Department at the end of World War II was compelled to make a final official announcement about AE's disappearance. Amelia Earhart had not been sent on a naval cloak-and-dagger operation. Her plane had not been shot out of the skies by Japanese gunfire. She had not been captured, held as a prisoner, or shot as a spy.

Nevertheless, despite official and unofficial beliefs and statements to the contrary, rumors still flourished.

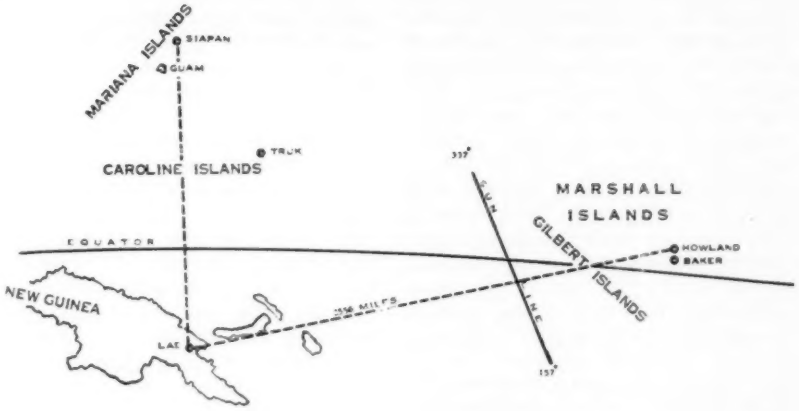
There was the story of the Japanese fishing boat. After United States forces had invaded the Marshall Islands—north and west of Howland—Lieutenants Eugene T. Bogan and James Toole were quoted as saying that this story was told to them by a missionary-trained native named Elieu:

> "Ajima, a jap trader, said three and a half years ago that an American woman pilot came down between Jaluit and Ailinglapalap Atolls [southeastern Marshall Islands] and was picked up by a Japanese fishing-boat crew. She was taken to Japan."

In July of 1944, during the invasion of Saipan, in the Mariana islands—far north and west of Howland Islands—the Marines found in an abandoned Japanese barracks a photograph album filled with snapshots of Amelia Earhart in her flying clothes. It is known that AE carried a camera with her on the world flight but not that she was carrying a photograph album filled with pictures of herself.

Dr. Brittain, the same who had been on the searching *Colorado,* was queried in 1944 about the Saipan pictures. He felt that there was a definite connection between the album and the disappearance of the Earhart plane.

Of all the pieces of "evidence" in the stories about the disappearance, the most extraordinary was a piece of wood. It was a fragment of fence post, with sev-



Route of Amelia Earhart's last flight.

eral nail holes in it and with one end badly charred. The piece of wood was found in July, 1942, by Robert D. Weishaupt while he was on beach duty with the Coast Artillery at Baranof Island, Alaska. Weishaupt noticed the burned piece of fence post as it washed in and out from the shore. It looked as if it had some writing on it. He waded in and picked it out of the water.

On one side was printed:

TO MY HUSBAND — I HAVE CRASHED 250 MILES FROM HAWAII — N.W. OUR MOTOR WENT INTO FLAMES — SHARKS ABOUT ME.

A.E.

and on the other side, simply:

MRS. A.E.

Whoever wrote on the piece of wood and set it adrift on the water perpetrated a cruel hoax. It is extremely unlikely that AE could have crashed 250 miles northwest of Hawaii; the Electra did not have enough fuel to fly another 2,000 miles beyond Howland. And if Amelia had written such a desperate message, on wood suddenly provided in the middle of the Pacific, she would have addressed the message, not "TO MY HUSBAND," but, rather, to GPP, her husband's well-known initials; and she would have signed her initials on the reverse side, not "Mrs. A. E.," but AE, because she was not Mrs. Amelia Earhart.

For the rest of his life George Palmer Putnam was a man haunted and hunted by people who claimed that they had mystic powers and that they could put him in contact with his wife.

Eighteen months after her disappearance Amelia was declared legally dead, and GP married again. He went to live in the mountains away from the crowds, and during the war he joined the Air Force.

The Light of Fact: A Mystery Solved?

Two additional events, however, separate in time and both involving Amelia Earhart—but heretofore never interrelated—do fit together into a logical and revealing pattern. All the pieces of the puzzle are not available, but there are enough of them to form a discernible picture.

At the end of World War II Jacqueline Cochran, then head of the WASPS, the famous organization of women ferry

pilots, was asked by General Hap Arnold to go to Tokyo and investigate the role that Japanese women had played in aviation during the war. While she was in Imperial Air Force Headquarters Miss Cochran noticed that there were numerous files on American aviation notables —and many files on Amelia Earhart.

These documents since that time have mysteriously disappeared. They are not in the official custody of the United States Government, or any of its departments, services, or agencies; nor do they seem to be in the possession of the Japanese Government. (All captured documents, those of historical importance having been copied on microfilm, have been returned to Tokyo. No AE files were discovered among the captured materials.) Nevertheless, these files seem to indicate that the Japanese had more than a normal interest in Amelia Earhart, because of another event that happened, curiously, again in the Marianas. This new evidence has never before been made public.

At the end of the war on the island of Saipan a Navy dentist worked with his assistant, a native girl named Josephine Blanco. It was 1946. Dr. Casimir R. Sheft, now practicing in New Jersey, was taking a break between appointments and talking with a fellow dentist. During the conversation Dr. Sheft casually mentioned the disappearance of Amelia Earhart and speculated about whether the famous flier could have ended her flight in the Marianas, and possibly near Saipan, for he had read somewhere that the Marines had found AE's flight log during the invasion (actually, it had been the photograph album). Suddenly his dental assistant, Josephine, broke in: She had seen an American woman flier many years ago—nine or ten—on Saipan, when she was a little girl. The American woman wore khaki clothes and had her hair cut like a man. . . .

Josephine Blanco, now Mrs. Maximo Akiyama, and living in California with her husband and their young son, was witness to an incident which is as incredible as it is enlightening.

In the summer of 1937 Josephine was riding her bicycle toward Tanapag Harbor. She was taking her Japanese brother-in-law, J. Y. Matsumoto, his lunch, and was hurrying along because it was nearly twelve o'clock.

That summer she had just finished Japanese grammar school, where she had gone for the last five years, ever since she was seven years old. In March she had celebrated her eleventh birthday, and now she could begin Catholic school. She was looking forward to studying with the Spanish missionary sisters. Father Tadzio had hoped that someday Josephine, too, like some of the other Chamorro native girls in the Marianas, would answer God's call and become a native sister.

Josephine had a special pass to the Japanese military area near the harbor. Not even Japanese civilians were admitted to the area unless they carried the proper credentials. The young girl rode up to the gate, stopped her bicycle, and presented her pass. The guard allowed her into the restricted area.

On the way to meet her brother-in-law, Josephine heard an airplane flying overhead. She looked up and saw a silver two-engined plane. The plane seemed to be in trouble, for it came down low, headed out into the harbor, and belly-landed on the water.

It was not until she met her brother-in-law that Josephine discovered who it was that had crash-landed in the harbor.

"The American woman," everyone was saying, greatly excited. "Come and see the American woman." Josephine and her brother-in-law joined the knot of people who gathered to watch.

She saw the American woman standing next to a tall man wearing a short-sleeved sports shirt, and was surprised because the woman was not dressed as a woman usually dressed. Instead of a dress, the American woman wore a man's shirt and trousers; and instead of long

hair, she wore her hair cut short, like a man. The faces of the man and woman were white and drawn, as if they were sick.

The American woman who looked like a man and the tall man with her were led away by the Japanese soldiers. The fliers were taken to a clearing in the woods. Shots rang out. The soldiers returned alone.

Mrs. Akiyama has affirmed, after identifying a photograph of Amelia Earhart and Fred Noonan taken on the world flight, that the couple was unquestionably the same man and woman she and her brother-in-law had seen on Saipan: the clothes were different, but the woman's haircut was unmistakable.

Josephine Blanco's story, which is basically the same one she told Dr. Sheft in Saipan, is most probably true. It is extremely unlikely this native girl could have invented her story. If she had, then for what purpose? If for profit or gain, she had, for more than ten years after the American invasion, the opportunity to capitalize on her sensational news.

As an eleven-year-old girl, Josephine of course had no idea of the significance of what she had seen other than it was indeed an American woman she had seen. Dr. Sheft has never doubted her story, and for many years he has hoped that a thorough re-examination of the facts would be made. They were.

Amelia Earhart could have ended her flight around the world at Saipan. If she were indeed headed for Howland Island, however, she somehow made an error of about 100° in reading her compass.

It means that all during the night of July 2, beginning after sundown at 5:55 P.M., Fred Noonan was not able to get a fix from the stars to determine his position. And if, after fourteen hours out from Lae, he looked down and saw a chain of islands, he would have determined that he was on course and over the Gilbert Islands; but if AE had turned north while he was napping, and he had still awakened in time to see the islands, they would have been, not the Gilberts as he might have thought, but the Caroline Islands—exactly the same distance away but in the wrong direction.

By somehow departing from her course, and making the tremendous error of steering north and west instead of east—as she had done once before on the world flight, when she had turned north to St. Louis instead of south to Dakar, overriding Fred's directions, after the flight across the South Atlantic—AE would have found herself after twenty-hours of flying time somewhere along the chain of islands that marks the Marianas.

Her last report, at 8:45 A.M., gave her line of position as 157-337. The Navy's search satisfied judgments that the line was not a radio line, for the areas northwest and southeast from Howland were thoroughly investigated. One hundred fifty-seven-337, therefore, was undoubtedly a sun line.

Near Howland, at position 01° 00′ North Latitude and 177° 20′ West Longitude, on July 3, 1937, the bearing of the sun was 66° from the north point at 7:00 A.M., Howland time. The sun line, therefore, would have been 156-336.

Near Saipan, at position 13° 00′ North Latitude and 153° 00′ East Longitude, at 5:00 A.M., Saipan time, the sun was 64° from the north point. A sun line there would have been 154-334.

If Noonan had thought he was close to Howland when he shot his last sun line, his geographical point of reference —used for computing and plotting his observation—would obviously have been close to Howland. If he had actually been close to Saipan, however, the relative position of the sun would still have been almost the same: 64° from the north point near Saipan, as opposed to 66° from the north point near Howland. But his observation, when computed and plotted on his chart, would have shown him to be the same number of miles from his geographical point of reference.

An experienced navigator with trust

in his abilities, such as Noonan, would have tended to believe that either his observations or his computations were somehow wrong. He would not have thought, at least immediately, that he was some 2,600 miles off course. If AE had been pressing him for a position to radio to the ITASCA, *he might have, in agonies of doubt, merely given her the line of position, which he could be sure of, but not the geographical point of reference, because he could no longer determine that point with certainty. This possibility would explain the irregularity of Amelia having transmitted the line of position without the necessary point of reference.*

On the basis of these determinations, therefore, there is strong support for believing in Josephine Blanco's story.

The Navy gave Amelia until about noon before she would go down. It was at noontime that Josephine saw the two-motored plane ditch in Tanapag Harbor.

The Navy's final conclusion was that Amelia had ended her flight somewhere north and west. Amelia Earhart and Fred Noonan were seen by two eyewitnesses north and west of Howland on Saipan. At that time of the year the American woman and her tall male companion could have been none other than AE and Fred Noonan.

In 1937 on Saipan, according to Maximo and Josephine Akiyama, the Japanese military did not hesitate to kill anyone, Japanese civilian or Chamorro native, whom they suspected of spying on their illegal fortifications.

Japanese officialdom maintaining an enigmatic silence (the Japanese Embassy in Washington knows nothing of the Earhart case, nor does Dr. John Young of Georgetown University, who examined captured documents for the American Government) concerning the disappearance of the two fliers, it may be idle to speculate upon the final fate of Fred Noonan and Amelia Earhart. The evidence, however, justifies at least one tenable conclusion.

When Josephine Blanco saw the twin-engined silver plane, Amelia and Fred had been flying for twenty-six consecutive hours and for 4,000 futile miles. The sight of the island that was Saipan must have cheered the fliers with renewed hope for safety, and for life itself.

When they survived the crash landing in Tanapag Harbor only to be taken into custody as spies, their joy must have turned to inexplicable bitterness: they had been saved not for life, but for death before a Japanese firing squad.

For Amelia, who once had said to her husband, "I don't want to go; but when I do, I'd like to go in my plane—quickly," the last word of her wish must have struck her now with sudden and ironic force.

Yet, as she had so often before, Amelia Earhart must have met this challenge with stubborn self-control and resolute courage. For here as last was her unmistakable, but irrefutable, fate.

Postscript from the Editors

Since the 1960 publication of *Daughter of the Sky,* two Air Force captains stationed in the Pacific have reportedly uncovered additional evidence that could shed further light on the subject.

THE TRANSCONTINENTAL RELIABILITY TEST

CAPTAIN RAY L. BOWERS

THAT EVENING at Roosevelt Field, New York, a long line of fifty-odd flying machines stretched into the dusk. All day the sky above Long Island had been filled with the hum of droning motors as pilots roared off for short test hops. Occasionally a new plane had appeared, arriving from some other Army Air Service field. The day's activities had gradually subsided, and an air of quiet expectancy had begun to mark the brisk autumn night. A few mechanics still labored under the glare of electric lights. Groups of pilots talked over forecasts for the morning of fair skies and strong westerly winds.

At the same moment, upon the green of the San Francisco Presidio landing field, scores of pilots and mechanics moved about, filling fuel tanks and performing final tuning-up processes. News photographs were made as the men busied themselves over the fifteen aircraft. Major Carl Spaatz, one of America's leading aviation commanders in France during the recent war, stood slim and dapper in full uniform. Captain Lowell H. Smith, in greasy coveralls, climbed over his machine. Smith, a quiet adventurous fellow in his late twenties, had flown with the three plane air force of Francisco Villa in Mexico six years before. Colonel Henry Arnold, displaying his usual smile, called together all the pilots for final instructions. It was 7 October 1919, the eve of the great transcontinental reliability test, Brigadier General William Mitchell's opening move in his protracted postwar fight for American air power.[1]

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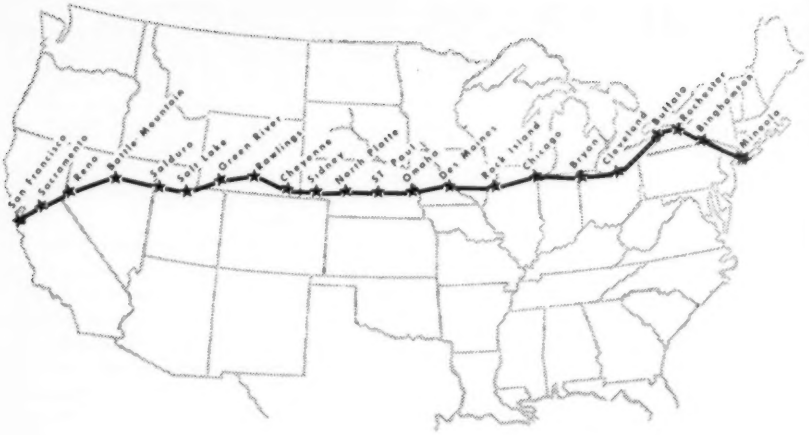
Billy Mitchell had returned from Europe early in the year to serve in Washington as second in command to Air Service chief, Major General Charles Menoher, a non-flying officer. Quickly Mitchell's energy and initiative had begun to mark all Air Service activities.

Under Mitchell, Air Service planners hatched plans for organizing and training the peacetime air establishment. Mitchell himself vigorously pressed far-seeing engineering projects at Dayton. The Air Service organized national publicity campaigns which stressed the relationship of aviation to national power. Mitchell's office studied the shortage of landing places over America, and worked to stimulate creation of municipal airfields. Before our Congressional committees, Mitchell and the peppery Benjamin Foulois led a prolonged struggle for adequate fiscal appropriations for aviation. In October, Mitchell maneuvered on the sidelines, as the New-Curry bill for a separate Air Force, independent of the Army and Navy, moved toward decision in Congress.

All of these activities were closely related to the rationale behind the transcontinental reliability test. The reliability flights would submit Air Service personnel, equipment, and techniques to rigorous test. Hopefully, the event would show the way for future commercial aviation, demonstrating the practicality and dependability of air transport. More than this, Mitchell and Foulois saw this unprecedented operation as a dramatization of the implications of modern air

[1] *New York Times*, 8 October 1919, 20; *San Francisco Chronicle*, 8 October 1919, 4.



The new transcontinental route laid the groundwork for the civil aviation of the future.

power—a bid for public support in the fight for aviation appropriations and a separate air service.[2] The official final report, guardedly summarized a foremost reason for the transcontinental test:

> Over and above all this, it was estimated that it would awaken a new interest in aviation in this country, reveal . . . the possibilities . . . of this new and powerful arm of national defense, which promises to equal in importance the land and sea forces.[3]

On 22 September General Menoher announced plans for the reliability test. The event was to be a contest among military aviators, challenging severely the endurance of both planes and pilots. Contestants would start from San Francisco or from Mineola, Long Island, landing at twenty intermediate control points, crossing the continent to finish at Mineola or San Francisco. No mass flight of comparable dimension had hitherto been attempted; no transcontinental flight had yet succeeded except by less rigorous southern routes. One newspaper writer branded the operation "the greatest endurance tests ever attempted."[4]

Early planning for the operation took place under Lieutenant Colonel Harold Hartney, head of the Operations Division under Mitchell. Other divisions of Air Service headquarters were not consulted, allegedly in order to test their ability to react to an emergency situation.[5]

The selected route was related to current Air Service thinking regarding a system of national airways. Existing landing places along probable future air routes were far too few to assure safe commercial passenger operations. An energetic program of airway and airfield development was needed to stimulate civil

[2]All of these aspects are developed fully in the author's "The Transcontinental Reliability Test; American Aviation after World War I" (unpublished M. A. Thesis, University of Wisconsin, 1960), 1-44, 69-71.

[3]Office of Director of Air Service, "Report on First Transcontinental Reliability and Endurance Test," *Air Service Information Circular*, I, 5 February 1920, 6. Hereafter cited as "Report," *ASIC*.

[4]*New York Times*, 23 September 1919, 8; 7 January 1919, 18; 19 April 1919, 9; *Aerial Age Weekly*, X, 29 September 1919, 80.

[5]Menoher to Chief of Transportation Service, 12 November 1919; Memo for Chief, Supply Group, from Major W. R. Weaver, Maintenance Section, 21 November 1919; Memo for Supply Group from Colonel Baldwin, Property Division, 25 November 1919, Army Air Force Files, Records Group 18, National Archives.

aviation in time to rescue the vanishing aircraft industry. No prepared landing places in regular use as airdromes existed across the open West, between Omaha and Sacramento.[6] The new transcontinental route boldly attacked this situation, cutting across the Rockies between Cheyenne and Salt Lake to link San Francisco with Omaha. The route followed the line of the Union Pacific and Southern Pacific railroads in order to facilitate deployment of ground personnel and supplies to the selected control stops. The railroad line would offer pilots a superb aid to navigation.

The makeshift landing field at the Army's Presidio post was to be the starting point for Western contestants, and the Air Service's Mather Field at Sacramento was logically the initial control stop. Between Sacramento and Omaha, ten towns along the railway were chosen as compulsory landing points. Information in Air Service files indicated that sites suitable for use as aviation fields might be found near these towns. Selection of the precise location for each western landing strip was left to Colonel Henry Arnold, Air Officer at San Francisco.[7]

East of Omaha the route followed the major cities along the Great Lakes — Chicago, Cleveland, and Buffalo. The Appalachian Mountains were thus avoided, and advantage could be taken of existing aviation installations near the larger cities. The transcontinental route totalled 2701 statute miles, with control stops located at average intervals of 130 miles. The decision to require landings at such short intervals, well below the range capabilities of most of the planes, was taken in the interest of safety and in order to permit short-range pursuit craft to participate. Only three of the required landing points were at elevations above 5000 feet. The new route, thus, was an eminently practicable one from the operational point of view. The inclusion of larger population centers rendered the operation significant for future commercial aviation and, not accidentally, offered great opportunity for kindling public interest and enthusiasm.

Building the New Airway

Construction of the chain of new landing places across the continent depended mainly on the energies of local civic and municipal leaders. Senior Air Service officers visited each of the communities, explaining the airfield requirements. Communities were asked to provide cleared and leveled fields of dimension 2500 feet, free of nearby obstructions, equipped with ground communications, police, shelter, messing, and transportation services. In every case mayors and chambers of commerce responded immediately and enthusiastically to all Air Service requests for cooperation. Colonel Henry Arnold, visiting the seven control stops in Nevada, Utah, and Wyoming, reported intense interest in the enterprise at each locality, among both city fathers and ordinary citizens.[8]

At Cheyenne, Wyoming, a "Committee for an Aviation Field for Cheyenne" supervised construction of the new field. The Committee worked closely with Wyoming Governor Carey, borrowing grading and blader machines for clearing and leveling the field from the state highway agency. Army officers from nearby Fort Russell contributed important advice and assistance. Officials viewed the field as a permanent municipal airport for Cheyenne, and far-reaching plans for hangars and night illumination were formed. The *Wyoming State Tribune* of Cheyenne proudly announced, "Cheyenne is going on the aviation map by leaps and bounds."[9]

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[6]War Department Aerial Route Map, April 1919, AAF Files, RG 18, NA.

[7]"Report," *ASIC*, 17; Reliability Test Rules and Regulations," Stencil U-246, AAF Files, RG 18, NA.

[8]Arnold to Director of Air Service (DAS), no date; Memo for Chief, Information Group, from Lieutenant Colonel Sherman, 23 September 1919, AAF Files, RG 18, NA; *Deseret Evening News* (Salt Lake City) 25 September 1919, 8; *San Francisco Chronicle*, 25 September 1919, 2.

Other cities were equally cooperative. Citizens of Battle Mountain, Nevada, spent $2000 and lent their personal services for several days in creating a fine landing field. At Salduro in the Utah salt desert, an excellent field was laid out atop the salt flat. At Binghamton, New York, the owner of the Endicott-Johnson Shoe Co. provided land and furnished a force of laborers to remove fences and clear and level the terrain, to create one of the better fields along the route. Mr. Johnson also supplied tents and other equipment. In San Francisco, the manager of the staid Palace Hotel offered the aviators board and lodging without charge.[10]

The Air Service sent letters to the mayors of fifty intermediate towns along the route, designating these towns as emergency stops, and asking that identifying markers be placed on large vacant fields or race tracks for use as navigational aids. The American Flying Club issued a general appeal to all mayors and caretakers of golf clubs to mark any fields where an emergency landing could be made.

The new transcontinental airlane consisted of little more than a group of consecutive landing places, many of them primitive and none with the equipment associated with the complex airways of today. The fields were not equipped with night lighting, as development of planes and airfields for night flying awaited a later day. Radio facilities for air-ground communication were not provided, for none of the participating planes carried receivers or transmitters. The fields were, however, eminently safe for use by skilled pilots in favorable weather, and were a credit to the municipalities whose energies created them. In only two weeks, a highway had been created for the first mass flight of aircraft across a continent, an achievement notable both in conception and execution. A lagging program of encouragement for a nationwide system of municipal airfields, important to both military and civilian aeronautics, had been given new impetus.

Deployment of men and material to the control stops was accomplished by rail transportation, blurring application of Mitchell's theories of rapid mobility to remote locations of self-sustained air power. Most of the controls were staffed by ten men, supplemented by assistance from local sources and by technicians deployed by civilian firms along the route. Upon the personal intervention of Mitchell, Coast Artillery searchlights were moved to several control stops, for use as beacons during hours of twilight.[11] In the absence of a functioning aviation meteorological service, a special board of Army and Navy officers and members of the United States Weather Bureau formed for the reliability test. The board made plans for preparing zone forecasts to be telegraphed twice daily to each control stop.[12] Kits for each pilot, containing maps, log books, and information sheets, were prepared in Washington. The maps were post office maps, showing only water features, large towns, and those railroads used by the post office. Mountains were not shown nor were ground elevations indicated. The post office map "left much to be desired for cross-country flying," and pilots were allowed to use other maps.[13]

To permit evaluation of aircraft and engine reliability, pilots were to record "the slightest adjustment or repair" in their logbooks during the trip. Last min-

[9]*Wyoming State Tribune*, 27 September 1919, 1; 29 September 1919, 2; 4 October 1919, 1; 7 October 1919, 1.

[10]Arnold to DAS, 23 October 1919; Reports of Lieutenants Wright and Manzelman, no dates; Memo by Binghamton Control Stop Commander, no date, AAF Files, RG 18, NA; *Omaha Bee*, 3 October 1919, 6.

[11]Mitchell to Chief of Staff, 29 September 1919; DAS to Chief, Coast Artillery, 2 October 1919; Arnold to DAS, 6 November 1919; Memo by Control Stop Commander, Cleveland, no date, AAF Files, RG 18, NA.

[12]Memo for Mitchell from Lieutenant Colonel McDill, 18 September 1919, AAF Files, RG 18, NA; *New York Times*, 5 October 1919, sec. 2, 1.

ute attempts by engineering personnel to secure better and more complete maintenance data were blocked by Colonel Hartney, confirming that the gathering of detailed and positive engineering data was not the primary purpose of the "reliability test."[14]

The spirit of the published rules was that of caution and safety. All flying was to be accomplished in daylight. Control stop commanders were to hold veto authority over any question of departure. The official contest categories offered racers little competitive advantage in hastening departures from control points. The planners intended that ground time be used for orderly maintenance activity, and careful planning and preparation for the next leg.[15]

[14]"Report," *ASIC*, 26, 24, 34-35.
[14]Memo for Chief, Supply Group, from Major Weaver, 21 November 1919; Memo for Chief, Property Division, from Lieutenant Colonel W. C. McChord, Materiel Section, 24 November 1919, AAF Files, RG 18, NA.

Tragedy Struck Early

The list of entries was strongly dominated by DeHavilland type DH-4 two-seat observation planes. This reflected the preponderance of the DH-4—the only combat plane built in quantity in America—in the Air Service inventory. The ship was particularly suited for cross-country operations, having carried away the first five places in a New York-Toronto round trip race held earlier in the year. In France, the DH-4 had earned the bitter title, "Flaming Coffin," a tribute to the unprotected pressure-feed fuel tank which burst into flame when penetrated by an enemy bullet. Many of the unsatisfactory wartime features had been corrected, but one hazardous and confidence-destroying condition remained. In the DH-4 the pilot sat directly behind the engine. The main gasoline tank was positioned between the pilot and the rear seat. In many acci-

[15]"Reliability Test Rules and Regulations," Stencil U-246, AAF Files, RG 18, NA.

Roosevelt Field, New York, a few hours before the start of the transcontinental reliability test, 8 October, 1919.

dents, the fuel tank broke loose from the structure, wedging the pilot between the tank and motor. The fatality rate for DH-4 front-seat occupants was therefore grossly high.

Two major accidents underlined the bad reputation of the DH-4 early in the transcontinental contest. On Saturday, 4 October, Major Patrick Frissell, en route from Indianapolis to enter the race at Mineola, descended to an emergency landing near Middletown, New York. His DeHavilland turned over on the rough ground, fatally crushing Frissell's body between the engine and gas tank.[16] The next morning Colonel Townsend Dodd, commander of Langley Field, encountered heavy fog on his way to Mineola. Attempting a landing near the Bustleton mail field near Philadelphia, the DH-4 smashed dead-center into a tree. Dodd met death strangled between engine and fuel tank.[17] Even before the start of the transcontinental race, two contestants had died in the front seats of DH-4's. Rear seat occupants in both crashes had escaped with nonfatal injuries.

Later that afternoon, a Martin bomber en route to Mineola appeared over Bustleton with one of its two Liberty engines malfunctioning. The Martin represented a post-war effort by the Air Service at developing a long-range striking force, and the performance of the two bombers entered in the reliability test was eagerly scanned by aviation figures. Lieutenant C. R. Colt, at the controls, overshot the landing place, puncturing two tires in the rough ground beyond. The ship plunged its nose into the ground and overturned, badly smashing both wings and the fuselage. Three of the four occupants were hospitalized with serious injuries.[18]

[16] *Cleveland Plain Dealer,* 5 October 1919, sec. A, 13; "Report," *ASIC,* 21.

[17] *Philadelphia Public Ledger,* 6 October 1919, 1, 2; *Aircraft Journal, V,* 11 October 1919, 4.

[18] *Philadelphia Public Ledger,* 6 October 1919, 1, 2.

The three serious accidents attracted little public attention. Press notices had not emphasized the connection between the accidents and the transcontinental race. The Air Service made no official statement. Certainly the accidents placed no damper upon official confidence and enthusiasm. On the night of 6 October, the Air Service announced the decision to make the race a round-trip affair, doubling the continent. Orders were dispatched to the control stops, advising that the return flights would be flown over the same route and under the same conditions. The announcement stirred little public comment.[19]

Mitchell and Foulois Before Congress

The controversies over the future of America's air arm approached decision. Mitchell and Foulois were to appear before the crucial House Military Affairs Committee on 7 October, to testify on Army reorganization and a separate Air Service. On 8 October the transcontinental reliability test, a practical demonstration of air power and the role of a separate Air Service, would begin. Finally, a new Curry bill providing for a united Air Service was being readied for presentation to Congress. Introduction of the new legislation, hopefully the basis for a great future Air Force, was to be triggered by the start of the transcontinental test.

Billy Mitchell's appearance before the House committee on 7 October was marked by his strongest statements to date. Mitchell announced squarely in favor of an independent Air Service, presenting a coherent and clearly defined outline of the Air Service position.[20] Mitchell's criticism of War Department leaders was indirect, implied in his positive argument for independent aviation. Not so the slashing arguments

[19] *New York Times,* 7 October 1919, 10; *Army-Navy Journal,* LVII, 4 October 1919, 134. In addition two LePere planes and another DH-4 were wrecked while deploying to Mineola for the start.

of Benjamin Foulois, who followed Mitchell before the committee.

Foulois blasted Secretary of War Baker's "skeptical, pessimistic, and narrow frame of mind." Foulois charged the Army with opposing air development and insisted that the War Department had "earned no right or title to claim further control over aviation or the aviation industry of the United States." Envisioning the role of an Air Service in development of commercial aviation, Foulois clearly looked to the transcontinental reliability test:

> I have frequently heard it said . . . that the Army is about the only nonproductive national agency in the country that the public is required to support. The developments of the near future are going to give the Army ample opportunity to refute the foregoing statement and to demonstrate its ability as a great producing factor.[21]

The Start at Mineola

The early morning sun dawned brightly upon chilly Long Island. At Roosevelt Field, scores of mechanics and guards huddled about huge bonfires. Aviators, one by one, appeared on the scene, bundled in sweaters and helmets. Overhead, cloudless skies and seventeen-mile winds announced an auspicious day for flying. Amid the dazzling sunlight, mechanics clustered about the machines, performing last minute inspections and repairs. Throngs of spectators in fur robes and overcoats watched the activities with excitement. Those visitors holding engraved invitations were admitted past the rope fence where they studied the planes with curiosity. Assistant Secretary of War Benedict Crowell, the Air Service's most prominent defender in Washington, arrived early and personally greeted each of the contestants. General Mitchell animatedly talked with visitors and officials. The 22nd Infantry band furnished music.[22]

Shortly after 0900, Lieutenant J. B. Machle with Sergeant Jesse McClure, upon Secretary Crowell's signal, took to the air, officially starting the transcontinental reliability test. The cheers of 2000 spectators nearly drowned the sound of the roaring Liberty engine. Rising to a height of 1000 feet, Machle circled the field once, then veered off to the northwest toward Binghamton. Lieutenant Colonel Hartney, who had planned the operation, was next off in a single-seat German Fokker. Within the hour, thirteen machines took the air. British Air Attaché Charlton, who was scheduled to be first off with his Bristol Fighter, was delayed by fuel difficulties and finally departed at 0935. Departures continued through the day, as pilots who had been delayed by mechanical difficulties took off at irregular intervals.

During a lull in the starting, Secretary Crowell indicated that he would like to make a flight. He was promptly outfitted in leather coat and helmet, and installed in the rear seat of a local Curtiss plane with Captain M. G. Cleary as pilot. No sooner had Cleary and Crowell left the ground than the engine coughed and became silent. The thousands of spectators watched with horror as the plane fell off on its right wing, struck the ground and turned completely over. Ambulances raced to the scene, followed by an anxious Billy Mitchell.

It was a narrow escape for aviation's only friend in the War Department. Before anyone had reached the scene, the figures of Cleary and Crowell could be seen, as they emerged waving from the wreckage. Although visibly shaken, Crowell courageously quipped that this was the shortest flight on record. He returned to the starting area and remained on the scene until noon.

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[20] Testimony of Mitchell, 7 October 1919, U. S. Congress, House, Committee on Military Affairs, *Army Reorganization, Hearings*, 66 Cong., 1 Sess., 1919, 906-921.

[21] Testimony of Foulois, 7 October 1919, *Ibid.*, 928-968.

[22] *Automotive Industries*, XLI, 30 October 1919, 894; *New York Times*, 8 October 1919, 20; 9 October 1919, 3.

After Crowell's accident, General Mitchell gave an exhibition of stunt flying in an SE-5. After landing, Mitchell described the purposes of the transcontinental test, emphasizing the importance of strong commercial aviation and a sound aviation industry, and the need for a single air service.[23]

From Frisco to Salt Lake

Less theatrical events were taking place at the Presidio at San Francisco. A small committee of local officials and several hundred spectators, mostly wives and friends of contestants, bade the flyers farewell. Low clouds at about 1000 feet hung over the small field. Departures were delayed by the fog and dim light. Lieutenant John Richter in his DH-4 led the way at 0651 and within the next eight minutes, twelve more ships left the ground at brief intervals. The simultaneous roar of the thirteen engines was accompanied by clouds of whirling dust. The ships banked to the right after leaving the ground and quickly disappeared into the fog and clouds.

Major John Bartholf, chosen by lot for the first take-off, was delayed for fifteen minutes by a rough-running engine. After some tinkering he was on his way. Remaining below the clouds, Bartholf was forced by gradually lowering ceilings to a harrowing altitude of 400 feet until well on his way up the Sacramento River. Bartholf later reported that "during the first day it was more a case of flying on your nerve." Bartholf flew one of the five single-seat British-designed SE-5 pursuit ships entered in the race.

The fifteen San Francisco starters early faced the most awesome part of their journey. Soon after the cloud banks about the Presidio, the aviators encountered the towering Sierra Nevada ranges east of Sacramento. Severe snowstorms in eastern Nevada, an area of numerous mountain peaks well over 10,000 feet in height, intensified the hazards of the airmen, who maintained course only by flying along the railroad. John Bartholf's ship was three times hurled violently about by the storm. He later spoke warmly of his little SE's staunch weathering of this terrible beating.[24]

Eleven of the ships reached Salt Lake, the fifth control stop, during the first afternoon. Captain Lowell Smith, Lieutenant Emil Kiel, and Major Spaatz led the way. Two others reached Salduro, Utah. A. J. Nassamer, in the only LaPere plane to successfully start the contest, returned to Reno after a forced landing with engine trouble. J. A. Cardiff attended a dance in his honor at Timpie, Utah, after being forced down in his Fokker over the salt desert. The pilots reaching Salt Lake were held there because of the dangerously soft condition of the field at Green River, the next control stop. Later that evening, 8 October, authority was granted from Washington for pilots to skip Green River if reports indicated that landing there was dangerous.[25]

Two fatalities were recorded at 1715 at the Salt Lake field. The ninth arrival of the day, a DH-4 with Major Dana Crissey and Sergeant Virgil Thomas, turned onto final landing approach. Circling the field, the two men waved greetings to the throng of spectators below. The plane stalled on the steep final turn, slipping off on one wing. Too close to the ground for recovery, the ship struck nose-first. No evidence was discovered to indicate that equipment failure contributed to the accident.[26]

America's Imagination Captured

Across the continent, crowds of expectant citizens began gathering before noon at the Glenn L. Martin airfield,

[23] *Aircraft Journal*, V, 11 October 1919, 3; *Flight*, XI, 16 October 1919, 1370; *New York Times*, 9 October 1919, 3.

[24] John Bartholf, "From Pacific to Atlanta in an SE-5," *U. S. Air Service*, Nov. 1919, 14-15; *San Francisco Chronicle*, 9 October 1919, 3.

[25] Telegram, DAS to Control Stop Commander, Rawlings, 10 October 1919; Captain T. S. Voss to Arnold, 2 December 1919, AAF Files, RG 18, NA.

eight miles east of downtown Cleveland, Ohio. Mounted police herded the orderly but dense assemblage off the landing grounds. Rows of awkward-appearing black "flivvers" lined both sides of St. Clair Avenue for eight blocks. The newly rolled grounds, marked with broad white bands, seemed as smooth as a grass lawn. By early afternoon, an estimated 15,000 people were on hand, awaiting the arrivals from Buffalo of the transcontinental test.[27]

At 1420 a buzz ran through the crowd, and eyes turned to view the first machine, a speck in the sky far to the east. The descending DeHavilland circled the field twice, and touched the ground executing what appeared to be a perfect landing. As the plane taxied toward the refueling area, the spectators could detect the nickname "Hello Frisco" and the large number "31" lettered in white on the dark green of the ship. The heavy DH-4 seemed huge next to the group of JN-4 "Jennies" parked at the side of the field.

As darkness fell over the Curtiss field at Buffalo, a long line of eighteen planes stretched across the field, the polished wings gleaming in the beam of searchlights. Each plane was carefully tied down with ropes and heavy stakes, with the possibility of strong winds. Mechanics and pilots worked over some of the ships; flyers scrutinized weather forecasts wondering whether to drain radiators against freezing temperatures during the night. Some of the pilots complained illnaturedly about the rigidity of Control Stop Commander Lieutenant A. B. Pitts, who had interpreted very conservatively the instructions regarding flying only by daylight. Despite heated protests by the pilots, Pitts had refused to permit departures after 1600. The last of the twenty-six arrivals, Lieutenant John B. Wright, landed safely at 1900 in near-darkness. Wright unstintingly praised the crew of the Coast Artillery searchlight, which had guided him to the landing field, thereby avoiding a dangerous forced landing in the dark.[29]

The first day had been marred by the death of Sergeant W. H. Nevitt, rear-seat occupant of the DeHavilland flown by Colonel Joseph Brant. Near Deposit, New York, an oil lead to Brant's engine ruptured, forcing Brant to descend hastily for a landing. As the plane entered the final turn the Liberty engine cut out entirely, causing Brant to lose control. Nevitt died soon after the crash; Brant received nonfatal injuries.

Mishaps eliminated several others from the contest. Air Commodore Charleton's Bristol was wrecked in striking a fence on a forced landing near Ithaca, New York. In the rush at Binghamton that morning, the usual precaution of using a chamois filter while refueling had been disregarded. Dirty gasoline blocked proper fuel input to Charleton's Rolls Royce motor, necessitating the forced landing. Lieutenant George McDonald's DH-4 met grief striking a small ditch during a forced landing after motor trouble over Pennsylvania. The DeHavilland machine piloted by Lieutenant Donald Gish, carrying French Air Attaché Captain de la Vergne, burst into flames over Livingston County, New York. With flames reaching back toward the cockpit, Gish executed a superb emergency landing. Both occupants emerged unhurt; the plane was destroyed by the fire on the ground. De la Vergne afterwards enthusiastically praised Gish's flying skill, and in token of his admiration, presented Gish with a flying trophy awarded to the French aviator by the Swiss government. Gish returned to Mineola, hopeful of starting again with another machine.[30]

Nightfall found Lieutenant Maynard

[28] *Deseret Evening News*, 9 October 1919, sec. 2, 10; *Salt Lake Tribune*, 10 October 1919, 8; "Report," *ASIC*, 20-21.

[27] *Cleveland Plain Dealer*, 8 October 1919, 1, 7.

[29] *Ibid.*, 1, 7; *New York Times*, 9 October 1919, 3.

[30] *Buffalo Express*, 9 October 1919, 1, 3; *New York Times*, 9 October 1919, 3.

the only entrant to reach Chicago. Three DeHavilland machines spent the night at the mail field at Bryan, Ohio. Hartney's Fokker and three DH-4's remained at Cleveland. Eighteen ships were at Buffalo, nine at Rochester, and two at Binghamton. Four planes were conclusively out of the contest, and six others were at scattered locations after safe forced landings. The early starters had clearly made the most of their advantage —none of the afternoon starters had flown beyond Buffalo.

Maynard's arrival at dusk at Chicago's Ashburn Field took officials there by surprise. The morning *Chicago Tribune* had declared it was virtually impossible for any fliers to reach the city before the second day. Maynard was interviewed by a *Tribune* writer:

> I'm tired . . . . It was a beautiful day for flying. That old Liberty motor batted out mile after mile without one complaint. It was a long hard grind, but we're going to win this race.[31]

Maynard and Sergeant Kline, hopeful of reaching San Francisco by sundown the third day, tossed restlessly on straw mattresses at the field during the night, declining sleeping accommodations in the city in hopes of making an early start in the morning. The *Tribune* for the next morning featured the aviation contest with page-one, banner headlines, predicting fifty-five arrivals for the day, and detailing a motor route to Ashburn Field for the benefit of readers.

The transcontinental reliability test had been appropriately launched; sixty-one starters had set out in quest of fame. Three men had met death during the day. The American public turned from baseball's World's Series to view the Air Service's imaginative bid for attention. That morning, coincident with the start of the race, Congressman Charles F. Curry of Sacramento introduced before the nation's legislature H. R. 9804, a bill "to create a department of aeronautics, defining the powers and duties of the director thereof." The bill, carrying the hopes of America's air leaders, was referred to the important Committee on Military Affairs, into the sympathetic hands of Julius Kahn of California and Fiorello LaGuardia of New York.[32] The days immediately ahead promised to be crucial for the champions of American aviation.

Lieutenant Colonel Harold Hartney, planner of, and participant in, the reliability test. His achievement, of doubling the continent in his single-seat German Fokker, was one of the highlights of the test.

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[30] *U. S. Air Service*, November 1919, 7; "Report," *ASIC*, 20-21; *New York Times*, 9 October 1919, 3; *Army-Navy Journal, LVII*, 11 October 1919, 169.

[31] *Chicago Tribune*, 9 October 1919, 2.

[32] *Congressional Record*, 66 Cong., 1 Sess., LVIII, 8 October 1919, 6582.

KITTYHAWK TO COUNTDOWN

CAPTAIN KELLY F. COOK

Maybe it is unfair to compare the great literature of the sea, which possesses its Smolletts and its Conrads, with the literature of flying, for men have sailed the seas for thousands of years whereas the air is still a new and comparatively unexplored element; even so, flying has inspired surprisingly little good writing.[1]

RICHARD RUMBOLD thus evaluated the literature of flight in his introduction to a biography of Antoine de Saint-Exupéry, the man generally considered to have produced the best writing about flying. Rumbold's statement is a fair one. He could have added that the great literature of the land possesses its Homers, Virgils, Dantes, and Shakespeares, and his comparison would have embraced another of the elements in which man has lived. Such a twofold comparison of the literature of land and sea with the literature of the air, moreover, would yield the same conclusion, for there is an overwhelming record in literature of man's life on both land and sea.

Of the story of man's life in the air, there is so little to offer in comparison that one is driven to reflect: the raw material provided by the experience of flying is as universal and meaningful as that which other writers have found in other elements; why has this wealth of material not been shaped into what the world will recognize as great literature? Is it true that Antoine de Saint-Exupéry was expressing a hope about the literature of aviation which has never been realized when he wrote, "The machine which at first blush seems a means of isolating man from the great problems of nature actually plunges him more deeply into them"?[2]

Both the reflection and the question just posed have no easy answers. In fact, because succeeding ages continually evaluate the literary past, it is probable that history will make a more reasonable judgment than it is possible to make now about the real worth of the literature of aviation. There is value, however, in a contemporary appraisal of the evidence to date, and this early evaluation is particularly justified by the reasonable certainty of man's flight beyond the earth's atmosphere on some date in the 1960's. When that imminent event occurs, it is also reasonable to believe that history will designate the first era of powered flight to have begun in 1903 and ended when man successfully flew and lived in space.[3]

If such limits do represent an historical era, one more definition is demanded before one may estimate the literature of powered flight during those years: What is the standard by which the written records are judged and termed "great literature?" This answer seems to rest appropriately in the words of Longinus,[4] who wrote that the best writing will be admired by "men of different pursuits, lives, ambitions, ages, languages," and

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[1]Richard Rumbold and Lady Margaret Stewart, *The Winged Life* (New York: David McKay, n. d.) 9-10.

[2]Antoine de Saint-Exupery, *Wind, Sand and Stars* (New York: Harcourt, Brace, 1940) 34.

[3]In limiting my analysis to literature since 1903, I want to emphasize the existence and merit of allusions to flight which may be traced to mythology. Earlier references to flight are included in the anthology, *The Sound of Wings*, Major Joseph B. Roberts and Captain Paul L. Briand, eds. (New York: Henry Holt, 1957).

[4]The identity of Longinus, as well as the date of his *On The Sublime*, has never been verified.

will sustain "a repeated examination." In the terms of the definitions established, then, the problem is to attempt to judge what works written about powered flight will bear the repeated readings of the future, and will cause men to admire them because they have not only hit upon the eternal verities, but have put these truths in words which move the mind and the emotions. Further, if flying has inspired little or no great writing, it becomes important to look at what *has* been written and try to see why so many books once interesting are bound to the quick mortality of time.

Early Practitioners of the Arts

Only fifty-seven years have passed since Orville Wright made the first successful powered flight on the almost uninhabited Outer Banks of North Carolina. And yet it is easy to survey that brief time, look at the books written about particular events, and classify those years into three periods: from 1903-1918, 1919-1939, and from the beginning of World War II to the present. This classification is somewhat arbitrary, but its basis is supported by the fact that what was happening in the world and what was happening in aviation interacted one upon the other, and determined directly what men wrote about flying.

In literature as in life, the story of powered flight begins with the story of the first flight itself, as Orville Wright wrote it later. As literature, this beginning of the story of aviation is as elemental as the flight it recorded: factual, clear, expository prose with no attempt to dramatize an event which had such far-reaching effects on the future course of world history. It is a record unique in itself, when one considers that an epoch of history began in our century and that we possess the detailed records of the men who brought powered flight from aspiration to actuality.

The airplane had just been developed as a workable machine when it became a military weapon in World War I. Thus, the record in literature is a quick transition from the Wright's story to the story of the first military fliers. This latter story is often characterized as the last record of chivalry, the last report of gentlemen in gentlemanly combat: rosy reminiscences of dawn patrols, all-night parties, Spad-and-Fokker dogfights, the ace of air-to-air combat, and—when all was said, done, and written—the years when a war and a machine coalesced to create a new profession.

This new breed of men, seldom thinking of themselves as progenitors of a profession, produced the literature of this earliest chronological period. In the war years they told their story in autobiographical narrative: a story of how it was and how it was done. Today, their books are valuable chiefly because the authors were early authorities in the field, rather than for any lasting literary merit in what they wrote. Therefore, the modern flier reads Eddie Rickenbacker, General Mitchell, Floyd Gibbons, Charles Nordhoff and James Norman Hall, Elliot White Springs, Bert Hall and John Jacob Niles, Billy Bishop, Bennet Molter, Lester Maitland, Ernst Udet, and Thor Nielsen primarily for their personal and technical descriptions of the first aerial war. It is doubtful if few readers outside the profession have read their reports, and the kindest evaluation of their works as literature is to say that they are of minor value.

The relative importance of this body of autobiography may best be seen in comparison with works written at the same time by contemporaries who wrote about what was happening on the ground: E. E. Cummings's *The Enormous Room*, Hemingway's *A Farewell to Arms*, Remarqué's *All Quiet on the Western Front*, and William March's *Company K*—to list some of the books today recognized as minor classics of modern literature. This comparison points up an essential failing of the early literature of aviation: the fact that personal experience which served its purpose for one-book autobiography was never transmuted into imaginative fiction in

the way that Cummings, Hemingway, Remarque, and March did with comparable raw material. Of the prominent pilot-authors noted above, moreover, the world knows them today primarily for achievements in fields other than literature: General Mitchell as a controversial and important military prophet; Eddie Rickenbacker as an airline executive; John Jacob Niles as the writer-singer of American folk songs; and Elliot White Springs as the owner of a cotton mill for which he wrote risqué advertisements. Only Nordhoff and Hall went on to make reputations in literature, and their reputations came after a conscious retreat from flying, a life in the Pacific south seas, and novels based largely on events of the previous century.

From the body of works of the earliest fliers there came one lasting effect, however: the image of the military flier. It is a blurred image, a montage of fleeting impressions rather than a sharply-defined picture. But it is an image which has persisted to this day: the white scarf, the face of "laughter in leather," and a personality of the young man who was adept at battle, dubious in peace, and who wore an outward swagger among a world he knew was not romantic. It was an image which the military services had to live with and live down far beyond the years of the first world war.

The rapid progress of aviation from 1919-39 produced a corresponding volume of writing about flying. Again, though, the bulk of this writing was personal narrative drawn from different sources, mainly one-time reports of historic explorations and record flights. The best—and typical—of books from this period are R. E. G. Amundsen's *First Crossing of the Polar Sea,* Admiral Richard Byrd's *Skyward,* C. E. Kingsford-Smith and C. T. P. Ulm's *Flight of the Southern Cross,* Wiley Post and Harold Gatty's *Around the World in Eight Days,* Sir George H. Wilkins's *Flying the Arctic,* and Lowell Thomas's *The First World Flight.* Unfortunately, the world may never know what Nobel Prize-winner William Faulkner might have written on the subject which he abruptly dropped after a nostalgic fragment, "All the Dead Pilots," one fine short story, "Turnabout," and one of his lesser novels, *Pylon.* In retrospect, it appears that aviation lost its most articulate voice when Faulkner left the sky to create his fictional Yoknapatawapha County novels of his native Mississippi.

The Thriving Thirties

The 1930's, however, were marked by a new level of personal narrative in such early works as Anne Morrow Lindbergh's *North to the Orient* and *Listen! The Wind.* Here, the raw material of autobiography was enriched by the writer's sensitive reaction to events and a literary style which made these events memorable. It was in the 1930's, too, that Antoine de Saint-Exupéry published two of his three best books on flying, *Night Flight* in 1931 and *Wind, Sand and Stars* in 1939. With Saint-Exupéry, aviation gained the voice which his most ardent admirers term "the Conrad of the air," and which the casual reader recognizes, at least, as a voice apart. In his native France, Saint-Exupéry won national awards in literature for both books: the *Prix Femina* for *Night Flight* and the *Grand Prix du Roman* (though the book is not a novel) for *Wind, Sand and Stars.* This last recognition, awarded by the French Academy, appears to be the first award of stature to a book based on flying. Although both books are based on the same kind of personal experience which formed the raw material of other works of aviation in this time, Saint-Exupéry's writing was marked by "the authenticity and conviction . . . conveyed with the insight, the sensibility, and the power and grace of the born writer."

Five years after the publication of *Wind, Sand and Stars,* Saint-Exupéry was dead; at the age of 44 in 1944, he did not return from a P-38 reconnaissance flight over southern France—his eighth sortie of a third combat tour. His last book published before his death, *Flight to Arras,* together with his post-

humous publications, *The Wisdom of the Sands* and *The Little Prince*, belongs to the third chronological period of the literature of powered flight, World War II and our own time.

These years from 1939 to the present have seen the literature of powered flight reach its peak, both in volume production and literary merit. During World War II especially, many writers of established reputation wrote about the air war: novelist Walter Edmonds in his history of the early Pacific fighting, *They Fought With What They Had;* Ernie Pyle's portraits of airmen in *Brave Men* and *Here is Your War;* H. E. Bates in his excellent short stories of the Royal Air Force, *There's Something in the Air;* James Gould Cozzen's *Guard of Honor*, a Pulitzer Prize-winning novel of stateside battles; Paul Brickhill's *Reach for the Sky;* Eric Friedheim and Samuel W. Taylor's *Fighters Up;* and W. L. White's *Queens Die Proudly*. Anthologies rightly include shorter pieces of superior reporting in the imaginative efforts of such well-known writers as Brendan Gill, A. J. Liebling, St. Clair McKelway, Wolfgang Langewiesche, Gill Robb Wilson, Elliot Arnold, Marion Hargrove, Keith Ayling, Leon Wolff, Saul Levitt, John Hersey, Walter Peters, Joseph Dever, and Clayton Knight.

This body of works by professional writers was complemented by personal histories of men who directed air campaigns, Generals Arnold, Chennault, Kenney, Brereton, and Doolittle, and there were interesting narratives of airmen who established prominent reputations: Ted W. Lawson, Robert S. Johnson, John T. Godfrey, Don Gentile, and "Pappy" Boyington. There were revealing histories of air forces allied with America and pitted against her: Sir John Slessor's R.A.F.-centered *The Central Blue*, Adolf Galland's story of the Luftwaffe, *The First and the Last*, and—more recently — the *Kamikaze* force history, *The Divine Wind*, by Rikihei Inoguchi and Tadashi Nakamima. There were two works in which personal experience was raised conspicuously above expository report: Lieutenant Colonel Beirne Lay, Jr.'s *Twelve O'Clock High* and Lieutenant Bert Stiles's *Serenade to the Big Bird*.

The very recent years embracing the Korean War and the reach for space have been marked by two good novels, John Hersey's *The War Lover* and James Salter's *The Hunters*, the latter a realistic story of the Korean jet fighter ace which its author published under a pseudonym. Finally, the contemporary story of flight has been updated by collaborations, biographies, and autobiographies by or about Amelia Earhart, Jacqueline Cochran, Charles Yeager, Tony LeVier, William Bridgeman, and Scott Crossfield. Certainly, during the years since 1939, aviation has not lacked for competent professionals to tell its story.

The most lasting telling of the story in our time, though, belongs to professional aviators who were gifted with literary sense and style: Charles A. Lindbergh and Antoine de Saint-Exupéry. Lindbergh's *The Spirit of St. Louis*, the story of his 1927 trans-Atlantic flight which was published in 1953 and won a Pulitzer Prize, represents the kind of personal experience translated into deeper meaning by the writer's interpretation of detail. In this respect, Lindbergh and Saint-Exupéry are remarkably similar: men who were, first, professional fliers and, later and as a direct result of their flying, evocative spokesmen of what flying led them to learn. Both men wrote philosophically, especially in two works: Lindbergh in his brief, little-known, but important comment, *Of Flight and Life*, and Saint-Exupéry in his longer analysis of the 1940 German invasion of France, *Flight to Arras*.

The Poetic Achievement

There is one final category of the literature of aviation—its poetry—which was deliberately not included in chronological divisions under which other writings have been discussed. Poetry, by its structure, demands a discipline of the

writer which is far more stringent than that which applies to fiction and, to a lesser degree, to biography and personal narrative. The good poet must not only choose his words more carefully and for special effects of sound, emotion, and thought, but he must also be more economical with words. In the poetry of flight, it is not surprising, therefore, to find a level of literary quality which surpasses that found in prose. Here, once again, aviation has profited from the fact that many of the best poets of the century have found subject in flight, beginning with the distinguished William Butler Yeats, whose "An Irish Airman Foresees His Death" is reprinted in almost every anthology of modern poetry. Other noted poets who have written about flying are John Ciardi, Randall Jarrell, Robert Lowell, Wallace Stevens, Stephen Spender, Sara Teasdale, Selden Rodman, W. H. Auden, and William Rose Benet. All of these poets are represented in one or more of the following anthologies or collections: *The Sound of Wings*, edited by Major Joseph B. Roberts and Captain Paul L. Briand; *The Poetry of Flight*, edited by Selden Rodman; *War and the Poet*, edited by Richard Eberhart and Selden Rodman; John Ciardi's *Other Skies;* and Randall Jarrell's *Losses, Selected Poems*, and *Little Friend, Little Friend*. Nor would any mention of the poetry of flight be complete without noting what is perhaps the one best known poem about flying, John Gillespie Magee's "High Flight," a poem successfully worded in language and tone between the sublime and the sentimental. Finally, one remarkable anthology merits special praise: *Air Force Poetry*, edited by John Pudney and Henry Treece. This collection is made up of poems by R.A.F. personnel, and is as laudable for its lack of the painful sentimentality common to poems written by soldiers in wartime as it is for its superior level of poetry.

It seems that the literature of aviation is becoming progressively more deserving of the term, good literature, though one must honestly admit that it does not yet include works which seem certain to impress "men of different pursuits, lives, ambitions, ages, languages" that repeated examination will cause repeated admiration. It is an inescapable conclusion that the literature of powered flight is fragmentary. This quality, above all others, both characterizes it and distinguishes it from literature based on other sources. The casual reader will occasionally find a work which interests him, or which may move him; the serious reader can remember a number of individual works by which he is stirred to say, "Yes! This is how it was. This man has told our story." But he cannot point to any one work which has plunged into life, for example, as Melville did in a story of the sea, *Moby Dick*. Even when one adds up the histories, personal narratives, character sketches, reports, the many good poems, the few good short stories, and the fewer good novels, he finds it hard to cite any one outstanding work which is likely to interest or long impress a reader who does not have a personal interest in the subject.

One may argue that Saint-Exupéry has written the best single book in the field, that he has produced the only sizeable body of work on the subject, and that his body of work most nearly satisfies the criteria by which literature is eventually judged. However, Saint-Exupéry cannot be canonized in the name of the literature of aviation. Even when we admire him for his achievement, we must admit his limitations. In so doing, we are forced to look forward to the expectancy of what is to come if we are to believe that the air will inspire great literature. In the future, someone as yet unknown in literature may create the work which will be acknowledged as fitting and great, and perhaps the classic of the air will come from one who has been detached from its clamor and who is able to look back in tranquility and tell the story with the greatness inherent in its history.

BOOK REVIEWS

By Air Force Academy Officers

THE YEARS OF THE SKY KINGS. By Arch Whitehouse. (New York: Doubleday, 1959, $3.50.)

If you are interested in props, crates and aces, bailing wire and two-placers, you should put Arch Whitehouse's THE YEARS OF THE SKY KINGS high on your reading list. This book is concerned primarily with aerial warfare during the first World War. However, the author early disenchants the reader who is interested in the development of the theories of air power by making it clear that high-level planning was not of primary importance in the evolution of the air war. Rather than standard operating procedure it was the "seat of the pants" that led to important refinements in the art of aerial bloodletting. This is a chronicle of blood, heroism and dedication that at times is a most heady brew. The breed of men who occupied the air space over the Western Front must have cast a shadow that dwarfed the clouds and possessed courage reserved for residents of Mt. Olympus. As the author proceeds from 1914 to 1918, a procession of airmen live in fame or go down in flames almost as fast as you can say Rickenbacker. These are men whose pictures, when flashed on the screen, would turn wartime movie audiences into a state of mass hysteria that would put Sinatra and Presley to shame. Some of these eagles, men such as Guynemer, are deified to this day, while others such as Baron von Richtofen have developed into controversial legends. Without exception they were possessed of fortitude above and beyond the mortal earthman. Some were physical weaklings, while others were experienced barroom fighters. Some were possessed of idealistic fervor that would do justice to a nineteenth century abolitionist, while others were possessed of an obsession to kill, born of an inordinate hatred for the foe. Within the pages of this book, replete with heroes that would make Wagner weep, is the history of the genesis of aerial warfare. Whether these knights of the air repose in Valhalla or writhe in Hell, is unimportant. What is important is that they broadcast the seed and from it sprang war's third dimension. The decisiveness of this new dimension was to be demonstrated within a quarter century. Attesting to this decisiveness, Winston Churchill praised the lineal descendants of Whitehouse's warbirds saying "never in the field of human conflict was so much owed by so many to so few."

WILBERT H. RUENHECK
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FIRST MEN TO THE MOON. By Wernher von Braun. (New York: Holt, Rinehart and Winston, 1960, $3.50.)

One ancient jet pilot, speculating about his own chances on a moon flight, said, "I'd be confused from the time they started counting backward." Despite the almost daily scientific breakthroughs which take man closer to the moon, such skepticism is still widespread among laymen. The Army engineers are even developing a tractor for lunar construction work. But still many of us resist the facts, perhaps because the facts — the individual discoveries and inventions which as a whole assure man's eventual flight to the moon — come to us piecemeal. Wernher von Braun has assembled the pieces for us. Result: the formerly skeptical lay reader of *First Men to the Moon* wonders why the first trip hasn't been made already. He hopes that it isn't made during the two hours it takes him to read the book: he wants to display his newfound understanding and credulity before they become passe. Von Braun, with the aid of his illustrator, Fred Freeman, apparently set out to explain to the man on the street the probable steps in a round trip to the moon. But he has accomplished more: he has presented a convincing argument that eventual moon flights are a leadpipe cinch. His technique is to dramatize the flight, taking two well-trained astronauts from earth to moon in sixty hours, following them through their five days of observation, exploration, and sample gathering, then bringing them back to earth. The two men have names, families, sense of humor, and human weaknesses; but if they did not, the book would be only slightly affected. The particular merit of this book is its understandable and believable explanations of each phase of the adventure, from X minus five minutes, through the firing of the first four rocket stages, into and out of the various gradations of outer space, through the lunar landing and exploration and the launch from the moon, to the white hot reentry to the earth's atmosphere and a chaotic welcome by the people on the Pacific atoll from which the two had departed so abruptly seven days before. So frenzied is the gathering, and so uneventful

was the trip, that it doesn't sound trite when one astronaut says to the other, "Let's go back to the moon!"

WALTER J. BACON
Captain
Instructor in English

KITTY HAWK TO SPUTNIK TO POLARIS. By Eugene E. Wilson. (Barre, Mass: Barre Gazette, 1960, $5.00.)

The simplicity of this book's title belies its true nature, one of controversy and of special pleading. Mr. Wilson's opinions seem to have developed from his experiences as a Naval Academy graduate, a World War I naval officer, and an aircraft industry executive. The book purports to be a history of airpower development, yet it becomes a brief for replacing the "rule of force" by the "higher law." Mr. Wilson proclaims the principle, but does not develop practical recommendations as to how the idea may become reality. Mr. Wilson writes history when he recounts his role in governmental meetings such as the interview with Secretary Forrestal on the World War II aircraft industry conversion. The book has long passages of personal reminiscence, as well as many pages of extremely biased and bitter statements on American air policy. The author pictures himself as a "prophet with honor," whose message has not been heard, or if heard, not understood. Mr. Wilson prides himself in using a rational approach in analyzing the "interplay" of societal forces." His review of the post World War II interservice feuds is anything but an impartial scientific analysis. Mr. Wilson should separate facts from opinions, opinions from moralizings. He labels the book an "inside story." This is only partially correct, for Mr. Wilson keeps within this limit only in his narrative of meetings of governmental and industrial representatives. The author's description of his dissociation from these groups and of his "ejection into oblivion" reveals that he considers himself an outsider. There is a sharp contrast between Mr. Wilson's pleading for a "Christian" foreign policy and his bitter denunciation of government officials and of such individuals as Billy Mitchell. He accuses Mitchell of seeing "visions" which would "redound to . . . (his) personal professional advancement." Wilson feels that Mitchell and others were guilty of conjuring up the "evil spirit" which denies the worth of moral principle. Many readers will feel that the author believes morality and conscience are the special province of the admirals and the aircraft industrialists. There is a fuzziness about Mr. Wilson's philosophy. He talks to the reader of his having been "swept up in events," yet he asserts that man can be "captain of his fate"; in contrast to his fatalistic statement that the atomic bomb "blew up mankind's hope of salvation" is his optomistic assertion that man can evolve to "higher species." While Mr. Wilson's concept of *Pax Aeronautica* is noble, and while one may agree with him that there is a "peace potential in aeronautics," a reader may feel that Mr. Wilson has not looked sharply at the realities of international relations. One may admire his suggestion that mankind sign an agreement to abide by the rule of law, and yet feel that Mr. Wilson naively believes in "word-fact." He mistakes the utterance of his word for the *fait accompli*. In conclusion, one might figuratively observe that the author wants to "fire off" what he believes to be a noble concept. The book as an instrument of his thought, however, does not get off the ground, and, therefore, never takes the reader downrange to the target of the author's special pleading.

CORTLAND P. AUSER
Lt. Colonel
Associate Professor of English

THE WAR—A CONCISE HISTORY 1939-1945. By Louis L. Snyder. (New York: Julian Messner, Inc. 1960, $7.95.)

Louis Snyder's first published book written in 1932 was *Hitlerism*. Since then he has devoted much study time and writing effort to the problems of modern Europe, particularly those of German and of nationalism. In his latest book he has undertaken the tremendous job of condensing, clarifying, and analyzing the myriad of "events, incidents, and trends" which made up World War II. As he explains in his preface, Mr. Snyder considered his greatest task to be that of accenting the essential. To tell a simple and logical story of a war that raged in the Pacific, in the Mediterranean, over the steppes of Russia and on the continent of Europe is most difficult and challenging. The matter of the approach itself is an extremely complicated one; should one try to trace the developments in one theater of war from beginning to end, or should the overall chronology of the war govern the presentation of its separate developments? Snyder uses the latter approach. In his block, "Phoenix: Turn of the Tide," his chapters include Guadalcanal, El Alamein, Torch, and Stalingrad, the tremendous events of 1942. He recites these various campaigns, with understanding and intelligence, without becoming bogged down in operational details so easy to do when writing military history. While devoting considerable space to the war itself, Mr. Snyder does not omit various interesting sidelights. For example, his account of "Fantastic Icarus: Rudolph Hess" intriguingly develops the motivation of that unfortunate disciple

of Hitlerism. Again, Snyder examines Yalta, outlining the original optimism at its outcome, the subsequent disillusionment with the alleged sell-out to Stalin, and finally, rebuttals to the various criticisms. Both sides are fairly presented; no positive answer is offered because, says Snyder, the debate continues as do those on Munich and Pearl Harbor, all benefitted by hindsight, "the easiest of all intellectual exercises." Whereas Mr. Snyder recites the controversy born at Yalta, he rather studiously omits other notorious disagreements of the war: the Anglo-American differences concerning the feasibility of the cross-channel invasion; the Eisenhower-Montgomery opinions regarding a broad-front thrust into Germany vs. a British-led drive north of the Ruhr; and our own interservice grappling with the problem of theater priority — which comes first, Europe or the Pacific. Although these problems are provocative to students of military history, their omission from a work like Snyder's cannot be considered too significant. As mentioned above, the task he has undertaken was to present a coherent, time-focused picture of the greatest war in history, a picture that could not possibly include all the facets on an incredibly complex human, and frequently inhuman, undertaking. That he succeeded in his task is quite obvious; he has produced a very readable, accurate, and valuable story of our war, World War II.

JOHN A. KERIG
Lt Colonel
Associate Professor of History

THE FIRST WAR PLANES. By William E. Barrett. (Greenwich, Conn.: Fawcett Publications, 1960, $.75.)

Paperbacks are respectable now, so I suppose we don't need to defend this little book's size and format. Certainly the content is meaty enough—scores of pictures of the airplanes used in World War I and the men who became famous flying them. The lengthy captions are almost miniature monographs, full of the detailed information and lore the author has acquired in a lifetime of collecting data on World War I aviation. There is also a general account of the development of military aviation, 1908-1918, but to the reader the pictures and captions will be infinitely more fascinating. The erudition Mr. Barrett displays in this field—the airplanes of World War I—is both loving and breathtaking in its detail. On the German D.F.W.: "Even when it was pictured in the Allied press it was wrongly captioned." Of the British R.E.8: "Its reputation as a flamer was so deadly that it was a common practice of R.E. squadrons in France to fill the reserve tanks with Pyrene instead of petrol." Of the S.E.5A: "Many highly regarded aviation histories of World War I state that S.E. meant 'Sopwith Experimental.' It meant 'Scouting Experimental,' and the S.E. was the product of the Royal Aircraft Factory." Of the Nieuport 28: ". . . it wasn't popular with U. S. pilots. The American temperament is not a duelist temperament, and the 28 was a dueling ship at its best in dog-fighting or individual combat. Americans preferred the Spad . . . because it was a sturdy, slugging ship which rushed in for a decision." This isn't one of the carefully documented official histories, nor is it even a connected general account like Whitehouse' or Quentin Reynolds'. How much room is there in history, then, for a book like this? Not much, I suppose, if you feel that in historical study we should seek out only general trends, major decisions, developments which affected the later course of nations. In that sense, *The First War Planes* is more antiquarian research than history. And we wonder, with new technological events overwhelming us every day, with man reaching into the new frontier of space, how much time have we for detailed study of such minutiae as the differences between the Albatross D-2 and the D-5? Now as past events fade, our detailed studies merge into the blurred impressions we call history. From this perspective it may not seem very important what kind of airplanes were flown in a war of a sort that can never be repeated and which belongs to a world that seems increasingly remote in the era of nuclear weapons and ICBM's. But the spirit of man has eternal fascination, and the ingenuity and courage described in *The First War Planes* do have a place in our historical literature. Although we know the memory of World War I will fade away, and with all human events will disappear into the ultimate oblivion of the human race and the little era of time it occupies, I hope we can have many more books like this.

HAROLD L. HITCHENS
Major
Faculty Secretary

THE NATIONAL PURPOSE. By John K. Jessup, Adlai Stevenson, Archibald MacLeish, David Sarnoff, Billy Graham, John W. Gardner, Clinton Rossiter, Albert Wohlstetter, James Reston, and Walter Lippman. (New York: Holt, Rinehart & Winston, 1960, $2.95.)

This volume first appeared as a series of articles in *Life Magazine* at the request of Mr. Henry R. Luce, and has now been published in book form. Interestingly enough the authors are in agreement on the leading issues of the day. Americans everywhere are concerned about the apparent lack of drive and fortitude in maintaining world leader-

ship, while at the same time, they seem to be complacent at home or at least confused in meeting the needs of our domestic problems. As evidenced in the recent presidential election, these men feel that the number one problem is the securing of peace without loss of freedom. In each of the articles, the writer has a tangible feeling of optimism about America and senses that a sleeping giant is slowly awakening to the great task at hand. Most Americans will certainly agree that their frontiers are far from conquered. Our present generation, and those who will follow, will have challenges of such magnitude in domestic needs (such as hospitals, schools, universities, housing) as to keep their best talents busy quite apart from the great threat posed internationally by the Soviet Union. Through a well directed American generosity, the United States will either meet the needs and desires of backward countries for peace, freedom, enlightenment and a higher standard of living, or these nations will turn to the communist world in order to achieve them. In a book of this nature, none of the writers is able to delve deeply enough into his convictions and proposed solutions to national problems. In this sense the reader may feel cheated, but no one can deny the authors have caught the American spirit rather accurately. They have examined the American patient and have taken an accurate reading of the pulse. This in particular makes the book unique for it certainly is unusual to have so many notable Americans in agreement regarding our national character. They do not hesitate to criticize when appropriate, but it would have been more interesting had they discussed the future role of our armed forces more clearly. The whole world wants peace, but peace can be a state of slavery, and when we discuss disarmament our terms must be carefully defined. This is an excellent book. The authors have done a notable job of opening the soul of a rather disquieting America. The average citizen has a great stake in the American future, and for this reason alone, should read this challenging book.

WILLIAM J. THORPE
Captain
Assistant Professor of History

THE PROFESSIONAL SOLDIER: A SOCIAL AND POLITICAL PORTRAIT. By Morris Janowitz. (Glencoe, Illinois: The Free Press, 1960, $6.75.)

Here is a plea for the redefinition of the American military profession. Among other things, this book contains a description of changes in professional life, organizational setting, and leadership of the American military during the twentieth century. Within this scope the author attempts a socio-political analysis based primarily on personal interviews with 113 "future military leaders" and two written questionnaires, one administered in 1954 by Professors John Masland and Laurence Radway to a random sample of Pentagon staff officers, the other administered by the author to approximately 760 generals and admirals. Published sources and private correspondence are also used in addition to the coded questionnaire data from which most of the book's thirty-two statistical tables are derived. The study was written during the author's tenure as a Fellow of the Center for Advanced Study in the Behavioral Sciences, and the result appears to be boldly conceived. Mr. Janowitz maintains that many characteristics of military leadership in this country have been altered drastically in the past sixty years; therefore, he contends that a crucial problem exists in the search for methods by which the military establishment must adapt itself to continuing social, political, and technological change. To this end, the author sees certain conditions presently taking form in the military. He applauds the "fraternal" type of authority which is evolving within the command structure; he advocates domination of the skill structure by the rising class of "pragmatic military managers;" and he notes that today's broad, lower-status social base conforms to the "requirements of a political democracy" (p. 427). Of course, he recognizes that military education and career development is now being redefined in terms of the politico-military requirements of international relations, but he sees the need for increased emphasis in this area. Again, there is some disappointment after reading Chapter Twenty, "The Future of the Military Profession," not so much because of the author's thoughtful recommendations as by his omissions. For example, he might have addressed himself to an elaboration of the overall problem of a national constabulary force in the present international order. Finally, this book indirectly epitomizes the dangers involved in generalizing on limited factual information and the difficulty in collating interdisciplinary knowledge. Despite its few shortcomings, this is a well-written, highly provocative synthesis, and it should be included on the professional reading list of any military officer.

RUSSELL T. NEWMAN
Captain
Assistant Professor of
Political Science

RECENT HISTORICAL BOOKS

by

Air Force Academy Faculty Members

reviewed by

Captain William M. Crabbe, Jr.

BRIAND, Paul L. Jr., *Daughter of the Sky: The story of Amelia Earhart*, New York: Duell, Sloan and Pearce, 1960, $3.95.

Captain Briand, Assistant Professor of English, employs the narrative-dramatic-expository technique of the modern biographer in depicting the life of a most remarkable woman. Flash-backs, mostly pauses in the course of Amelia Earhart's aerial achievements, prove her a restless woman of varied interests: teacher, nurses' aide, social worker, airline representative, and aviation editor. Inevitably, her interests narrowed to the most challenging — the conquest of the air. Her philosophy that "adventure is worthwhile in itself," led her to ever greater accomplishment. Initially, in 1928, she won fame as the first woman to cross the Atlantic; albeit, to her regret, as a passenger. Not satisfied with this feat, after competing in the first Powder Puff Derby and later setting new speed records for women, "Lady Lindy" soloed across the Atlantic, just five years after Lindbergh's historic flight. There followed a series of record solos — Hawaii to California, California to Mexico, and Mexico to New Jersey; all leading to her greatest adventure — the attempt to circle the globe at the equator. Accompanied by Fred Noonan as navigator, the flight ended as tragically as had that of Wiley Post and Will Rogers in 1935. Unlike the Post-Rogers crash, Amelia Earhart's exact end has been shrouded in mystery. Speculation, the untrue and unkind alike, as Captain Briand points out, has continued to this day. At this point Captain Briand presents his thesis and evidence of "A.E.s" fate: the Lockheed Electra, far off course, crash landed in the harbor of Saipan, an island undergoing surreptitious fortification by the Japanese. Unwilling to chance disclosure of their perfidy, the Japanese garrison executed the two intruders.

ZOOK, David H. Jr., *The Conduct of the Chaco War*, New York: Bookman Associates, 1960, $6.00.

Captain Zook, Assistant Professor of History, has written an integrated account of this hemisphere's greatest struggle since the American Civil War — the Chaco War of 1932-1935. Cast largely in terms of the offensives mounted by each contestant, the political and diplomatic aspects are intertwined with the military to better establish relationship and distinguish cause from effect.

Conflict between Bolivia and Paraguay was inevitable. Frustrated by the territorial gains of neighboring states, both sought relief in a region they thought their just claim. The ill-defined boundary lines that had separated the old administrative sections of the Spanish Empire caused rankling contention. Bolivia provided the spark needed for recourse to arms by establishing tiny military outposts in the disputed region, the Chaco Boreal. Captain Zook refutes the economic interpretation of the conflict: that it was motivated by international oil interest; rather, it was the natural resort to the final instrument of diplomacy. The League of Nations was proven impotent for the second time in the decade; and all the more so in the absence of great power interests.

On the eve of the war, Bolivia enjoyed a superiority in numbers, resources and materiel. The author attributes Paraguay's victory primarily to the fact she fought a total war, marshalling all resources to the end of exhausting her opponent. Additionally, Paraguay proved more fortunate in her generalship.

Although the Chaco War was a land war, the author suggests that airpower could have played a decisive role, particularly for Bolivia who, early in the war, could have won victory had she capitalized on her undisputed air superiority.

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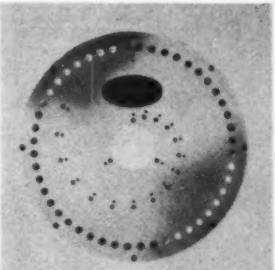

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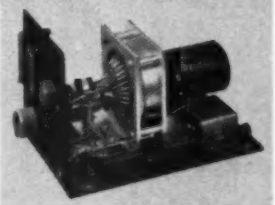

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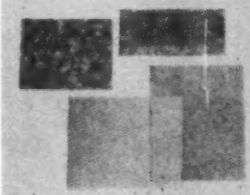

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